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A DISCRIMINATIVE STUDY OF GIRLS' PHYSICAL
EDUCATION IN HIGH SCHOOLS OF THE BIG
EIGHT ATHLETIC CONFERENCE

A Thesis
Presented to
the Graduate Faculty
Central Washington State College

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
Carol A. Finney
August 1969

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Robert N. Irving Jr., COMMITTEE CHAIRMAN

Donald G. Goetschius

A. H. Poffenroth

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CHAPTER I

INTRODUCTION

Evaluation has heavily influenced the school curriculum over the past decade or more. Every educational activity requires appraisal of one kind or another to determine its success in relation to certain standards. At the present, relatively little effort has been made to determine the quality or effectiveness of physical education programs in the schools.

Do we have good programs or inferior programs in the schools of the Big Eight Athletic Conference? How can we plead for better facilities and more equipment when we do not objectively measure the strengths and weaknesses of our present programs? Each school should evaluate its physical education curriculum every year and list the strengths and weaknesses of the program with the district physical education supervisor or the superintendent. Curriculum improvement demands an organized systematic plan of continuous evaluation.

This study is a joint project in the sense that Mr. Burdon Daugherty used the same research design to determine the status of physical education programs for boys in the Big Eight Athletic Conference while this writer studied the girls' programs. Identical research

designs make it possible to have a complete and comparable study of physical education programs in all eight schools. Another purpose for having identical research designs was to determine differences, if any, between the girls' programs and the boys' programs in each school.

I. THE PROBLEM

Statement of the problem. The purpose of this study was to determine the status of physical education in schools of the Big Eight Athletic Conference. This general purpose was divided into four sub-problems, namely: (1) to assess the status of physical education programs in the schools of the Big Eight Athletic Conference as judged by their chief school administrator or his designate and by the woman in charge of the girls' physical education programs; (2) to determine the physical fitness performance, the motor skills performance, physical fitness knowledge, and attitudes toward physical education possessed by sophomore students in each of the schools studied; (3) to determine the direction and magnitude of differences which exist between perceptions of the school programs as seen by those who administer the programs and the performance outcomes of those respective programs as displayed by the participants; and (4) to determine the degree of agreement in perception of program status between this school principal and each girls' department

chairman and between the boys' and the girls' department chairmen.

Importance of the study. Basically, the objective of this study was to determine the current status of the physical education programs in the Big Eight Athletic Conference. The importance of the study lies in the fact that physical education departments have had a difficult time attempting to improve their programs because no one really knows how well the program measures up to ideal standards. The relationship between perceptions of the program and its relationship to student achievement could influence program improvement.

Basic assumptions. This study rests upon certain basic assumptions, as follows: (1) each of the principals and physical educators involved answered the questions on the LaPorte Score Card N. II objectively; (2) verbal and written directions were followed by each instructor in administering the four standardized tests to students; and (3) the sophomore class tested in each school was representative of the whole sophomore class at the school.

Limitations of the study. This study was limited to eight schools in the central area of the State of Washington which are Wenatchee High School, Moses Lake High School,

Davis High School in Yakima, Eisenhower High School in Yakima, Richland High School, Kennewick High School, Pasco High School, and Walla Walla High School. All of these schools were classified as AAA schools on the basis of enrollment, by the Washington Interscholastic Activities Association. The tests selected for use in this study were limited to those which required no unusual equipment.

II. DEFINITIONS OF TERMS USED

Attitude score. The feelings or ways of thinking about something which result in emotionalized tendencies to respond in certain ways (1:545).

Diagnostic score. A test used to locate specific areas of weaknesses or strength, and to determine the nature of weaknesses or deficiencies. It yields measures of the components or sub-parts of some larger body of information or skill (1:546).

Evaluation. A process of education which makes use of measurement techniques which, when applied to either the product or process of education, results in both qualitative and quantitative data expressed in both subjective and objective manner used for comparisons with preconceived criteria (1:547).

Motor ability. The present acquired and innate ability to perform motor skills of a general or fundamental nature, exclusive of highly specialized sports or gymnastics techniques (1:548).

Physical fitness. The measure of total personality in action with emphasis on the factors--strength, endurance, power, agility, flexibility, speed, and balance (5:25).

Status. A reflection of the relative quality and effectiveness of the program (1:462).

III. OVERVIEW OF THE REMAINDER OF THE STUDY

Chapter II reviews the literature that pertains to the four purposes as stated earlier in this chapter. In Chapter III the procedures for collecting the data are outlined. Chapter IV is an analysis of the data collected from the various evaluative instruments used. Chapter V is a summary of the study with conclusions and recommendations evident from the analysis of the data collected. The appendix includes complete copies of all the evaluative instruments used in the study.

CHAPTER II

REVIEW OF LITERATURE

Status of physical education programs can be determined by use of various evaluative devices. Tests to compare status in physical education include general motor performance tests, physical fitness tests, sports skill tests, and knowledge tests. Other evaluation devices include inventories, opinionnaires, surveys, interviews, school records, check lists, rating scales, personality tests, sociometric techniques, and systematic observation (14:93).

In order to determine the quality of a physical education program, we must first determine the major objectives which the program seeks to accomplish. Nash specifies that physical education has as its objectives: (1) the improvement and maintenance of physical fitness, (2) the improvement and maintenance of neuro-muscular skill, (3) the teaching of strategy and intelligence in sports situations, and (4) the application and utilization of sportsmanship through learned applications found in competitive game situations (12:Ch.VI). Rice selected the following as outcomes to be measured in physical education: (1) physical fitness, (2) motor ability, (3) knowledge of rules of games, and (4) one's attitudes pertaining to physical education (17:13). Calhoun used the four basic objectives as outlined

by Nash (3:9).

I. PROGRAM SCORE CARDS

In this study, three score cards were reviewed; namely, (1) The Indiana Score Card, (2) The Neilson Score Card, and (3) the LaPorte Health and Physical Education Score Card No. II.

The Indiana Score Card measures the following four areas of the program: (1) administration, (2) program activities, (3) class management and instruction, and (4) facilities and equipment (8). This score card appears to be most suitable for internal evaluation of the program, but it would be difficult for an outside person to use.

The Neilson Score Card was initiated about 1928 and was revised twenty years later. This score card samples five areas of the program as follows: (1) instruction staff, (2) facilities, (3) program organization, (4) program activities, and (5) professional assistance (13:119). Hall reviewed the Neilson Score Card in his study and stated that "the scoring takes such a long time that this score card is not feasible for use in studies involving large samples" (7:16).

The LaPorte Health and Physical Education Score Card No. II originated in the College Physical Education Association and was initiated through a project of their Committee

on Curriculum Research in 1929. This device has been revised a number of times over the years by subsequent committees of the same association (10). The score card was compiled by William Ralph LaPorte and validated by over 150 national authorities (2:1). It was used in many doctoral dissertations under the chairmanship of Dr. Karl W. Bookwalter of Indiana University. These studies showed the status of physical education programs for boys in over 2600 high schools in 25 states (2:1).

The score card itself consists of ten areas: (1) Program of Activities, (2) Outdoor Areas, (3) Indoor Areas, (4) Locker and Shower Areas, (5) Swimming Pool, (6) Supplies and Equipment, (7) Medical Examination and Health Service, (8) Modified-Individual (Corrective) Activities, (9) Organization and Administration of Class Programs, and (10) Administration of Intramural and Interschool Athletics (10). Each area has a possible score of 30 points. Each of the ten questions in each area is rated 0, 1, 2, or 3 points. The LaPorte Score Card was studied by the use of the Votaw curve, which is a technique for determining item discrimination. The upper and lower 27 per cent in total score (731 schools) were selected as score card successes and failures respectively. All items in the score card except IX-5 (keeping class size under 35) properly discriminated these two groups (2:7).

In the Bookwalter study the median national score was approximately 28 per cent of possible. In Texas, the girls' programs were also rated and found to be about 4 per cent higher than the boys' programs. Accreditation, school size, and town size were all positively and significantly associated with total score in that order. Of the ten areas of the score card, the two highest attained in the national survey were Area 9 (Organization and Administration of Class Programs) and Area 10 (Administration of Intramural and Interschool Athletics). The two lowest areas were Area 8 (Modified-Individual Activities) and Area 5 (Swimming Pool) (2:3).

A positive relationship was found between the number and variety of athletic sports and the better physical education programs. Teachers were found to be 25 per cent effective in the eleven items for which they were judged responsible, whereas administrators were found to be 31 per cent effective on forty-six items and on forty-three items with joint responsibility, 30 per cent effectiveness was found (2:7). Calhoun found a tendency for Indiana high school scores on the survey to be positively associated with achievement by pupils on three of the four basic objectives. Attitude development was not related to the score card scores (3:144).

II. PHYSICAL FITNESS TESTS

Many physical fitness tests were reviewed for possible use in this study. Since a parallel study to determine the status of boys' programs was also being done, it was felt that all the tests selected should be similar if possible. Rice used the Indiana University Motor Fitness Index III to measure physical fitness in his study (17:13). Considerations such as time of the year and equipment necessary for the test were important selection factors. Finally, the Elder Physical (Motor) Fitness Test for Boys was selected for use. Dr. Everett Irish of Central Washington State College had compiled a six sigma standard score scale for this test for girls to accompany a similar scale for boys by Elder.

Elder set out to construct a physical fitness battery that would test the basic factors in physical and motor fitness; namely, strength, endurance, power, agility, flexibility, speed, and balance (5:25). He selected 14 tests of these factors for which high reliability and objectivity coefficients were either reported in the literature or had been substantiated by him. Elder's test has the following five items: floor push-ups, standing broad jump, trunk flexion, Cozen's dodge run, and squat thrusts. A multiple correlation of .911 between the Elder battery and the

fourteen-item criterion was found (5:123). Three additional criteria used for validation of the test were as follows: (1) critical ratios among eight groups believed to be significantly different in their motor fitness, (2) its relationship to Rogers Strength Index, and (3) its relationship to Rogers Physical Fitness Index (5:120). For the boys' fitness test a classification system based on age, height, and weight was used, but the girls test does not require any classification system. According to McCloy, age is of importance in classification for girls up to and including 13.5 years (11:64).

III. GENERAL MOTOR ACHIEVEMENT TESTS

Probably the most widely known general test of motor ability is McCloy's General Motor Achievement Test chosen for use in this study to determine the motor ability of girls. According to McCloy, general motor tests should not include events that involve highly specialized skills (11:208). Track and field events and strength tests were found to have high coefficients of correlation with a large battery of achievement tests with track and field events having correlations of .92, .84, .88, and .78 with basketball, soccer, volleyball, and softball in that order (11:208).

The McCloy General Motor Achievement Test for girls

is composed of modified pull-ups, a dash (50 yards), a broad jump (standing), and a throw (basketball). It is scored by the following formula: $.42 \text{ points} + 9.6 \text{ pull-ups}$. McCloy has provided scoring tables to expedite the computations (11:Ch. XVI and XVII). The general motor score indicates what a performer has achieved in general-motor development because of his innate capacity, training, and experience.

IV. KNOWLEDGE TESTS

At the present time there are few standardized knowledge tests available in physical education. Rice chose eleven activities to test for knowledge in his study, selecting ten questions from each activity. His sources were standardized tests in books and the Research Quarterly (17:17).

In the present study, a Master's thesis entitled, "A Physical Fitness Knowledge Test for Secondary School Boys and Girls," by Stradtman, completed in 1947 at the University of Illinois, was selected as a standardized measure of knowledge. The following served as a partial list of criteria in its construction: (1) it must be purely objective; (2) it must deal with recognized aspects of physical fitness; (3) it must reveal the areas of knowledge in which the student is deficient; (4) the test items must be those in which the students have had some experience; and (5) the context

should be within the vocabulary range for secondary school students. The test was divided into major aspects of physical fitness, physique and organic fitness, personal hygienic habits, and guidance habits (18:19).

The test items were selected by two methods: (1) ascertaining the types of programs recommended for high school students and endeavoring to make the questions apply directly to the activities performed, and (2) the judgement of competent persons as to what should be included in such a test (18:26).

The validity of the test was checked through the literature and was also given to a graduate class to determine the difficulty, with items rated too difficult being eliminated. Physiological soundness was checked by Dr. R. M. Melampy of the Department of Physiology of the University of Illinois. Reliability of the test was determined by using the split-halves method and the reliability for half the test was .906; for the whole test $.95 \pm .004$. The mean for the boys was 72.76, the girls 65.00 and the combined mean was 68.55 for the one hundred questions. The standard deviation was 3.75 for boys, 3.21 for girls, and 3.70 for combined scores (18:56). The test was designed for a forty minute working time period.

V. ATTITUDE TESTS

Several studies have used Wear's Attitude Scale as a measure of attitude toward physical education. This test

was originally designed for college men, but Rice used the Wear Test to evaluate boys' high school programs (17:18). Wear used the Likert technique of attitude scaling where the subject must choose one of five alternatives; viz, strongly agree, agree, neutral, disagree, strongly disagree (19:115). The first attitude inventory developed contained 120 items before a short form with 40 items was obtained.

The test was designed to check the outcomes having to do with: (1) physical well-being, (2) muscular strength and coordination, (3) total physical and muscular endurance, (4) acquisition of neuro-muscular skills, (5) resources for recreation for use of leisure time now and in later life, (6) mental health, emotional control, and poise, (7) social relationships, and (8) safety aspects providing for better control of body and better use of safety measures (19:116).

The reliability of the short form was .94 using the split-halves method. A numerical rating form for scoring the responses should give an indication of the subject toward physical education. The responses are numbered 5 for strongly agree and 4 for agree and down through 1 for strongly disagree for positive statements and the opposite for negative statements.

The Kneer Attitude Inventory was adapted from the Wear Attitude Inventory with the reading ability level geared to the eighth grade and above. The Kneer Attitude Inventory and Diagnostic Statements have two purposes: to measure attitudes toward physical education and to explore specific aspects of the facilities, program, and leadership

which students either like or dislike. The scale correlated .84 with the Wear Attitude Inventory serving as the validity criterion, and .87 and .89 with graphic self-ratings of attitude. The reliability coefficient was .95 (9:29-30).

Kneer also includes a thirty-statement diagnostic test which locates specific areas of weakness or strength, and to determine the nature of weaknesses or deficiencies in the physical education program. The diagnostic statements were not validated and should be used merely to help the teacher analyze the attitude scores. The scores of the two tests are not added together, but instead represent two separate areas of information. The test was designed for junior-senior high school girls.

CHAPTER III

PROCEDURES AND ORGANIZATION

The first purpose in this study was to assess the status of physical education programs in the schools of the Big Eight Athletic Conference as judged by their chief school administrator or his designate and by the woman in charge of the girls' physical education program. The Health and Physical Education Score Card No. II was selected as the survey instrument.

The second purpose of the study was to determine the physical fitness performance, the motor skills performance, the physical fitness knowledge, and attitudes toward physical education possessed by sophomore students in each of the schools studied. To determine these outcomes the following four standardized tests were selected respectively: (1) Elder Physical (Motor) Fitness Test, (2) McCloy General Motor Achievement Test, (3) Stradtman Physical Fitness Knowledge Test, and (4) Kneer Attitude and Diagnostic Inventory.

The third purpose of the study was to determine the direction and magnitude of differences which exist between perceptions of the school programs as seen by those who administer the program and the performance outcomes of those respective programs as displayed by the participants. The t ratio test for uncorrelated groups to test for significance

of difference between means was selected for use with the four standardized tests.

The fourth purpose was to determine the degree of agreement in perception of program status between the principal and each of the girls' department chairmen. Cohen's k was selected for use in determining coefficients of agreement within the LaPorte Score Card.

In order to secure the participation of all the schools involved, letters were sent to each of the principals stating the purpose of the study and asking for their cooperation. In the letter, they were informed that it would be necessary to schedule individual interviews with the principal and chairman of the girls' physical education department. The first letter also informed the physical education instructors that they would be asked to administer the four tests to one of their sophomore classes.

I. LAPORTE SCORE CARD PROCEDURE

The Health and Physical Education Score Card No. II is a survey instrument covering ten areas of the physical education program. In order to assure spontaneous response, the score cards were brought to the interview rather than being sent ahead of time. The principal was interviewed by Daugherty and the author at the same time, but he was instructed that he could give different values for the boys' and

girls' programs where they were not similar in his opinion. Next, the girls' department chairman was interviewed separately by the writer. The principal and the teacher read each of the one hundred statements and responded with an answer of 0, 1, 2, or 3 depending upon their respective judgments of how well the girls' program met the requirements stated in the LaPorte Score Card. Assistance was given only when asked for or when it seemed necessary to interpret a statement.

In order to facilitate the scoring during the interview, pre-printed "5 x 8" cards were used to record the responses for each area. A summary card was used to record the totals for each of the ten areas and the final score card total. These "5 x 8" cards were designed to ease the handling of data in interpreting the results of the study.

II. PERFORMANCE TESTS PROCEDURES

Written directions for McCloy's General Motor Achievement Test and Elder's Physical (Motor) Fitness Test were given to the instructors at the time of the interview. These directions were discussed and the importance of following directions was stressed. A "5 x 8" card was designed so that both tests could be recorded on the same card. The instructor giving the test merely recorded the scores and

mailed them to the writer, who tabulated the results of the tests.

The last two tests to be given were the Stradtman Physical Fitness Knowledge Test and the Kneer Attitude and Diagnostic Inventory each of which required a class period. The knowledge test has one hundred statements and was a multiple choice type with five responses after each statement. The student chose one answer and placed it on the space provided on the test sheet. On the Kneer Test, there were forty statements under the attitude part and thirty statements under the diagnostic section. Students placed an "X" under one of the five choices which best expressed their feeling about the statement. The responses ranged from strongly disagree to strongly agree. Upon completion of these two tests, the various instructors mailed them to the writer for scoring. Copies of the four tests will be found in the Appendix.

III. STATISTICAL ANALYSIS

The LaPorte Score Card data resulted in two separate judgments for each area of the score card; namely a principal's rating and a department chairman's rating. Where one judgment was required for statistical analysis, the average of the two judgments was used. School ranking by alphabetical letters resulted from the total score attained by each

school on the LaPorte Score Card.

Attainment percentage on the score card was obtained by dividing the total score card mean achieved by the possible score of three hundred and then multiplying by one hundred. This process was used to determine percentage attainment for the principals, department chairmen, average mean of the principals and department chairmen combined, and for each of the performance tests.

The t test applied to uncorrelated groups was used to test for significance of difference between means of schools on the four performance tests (6). The two schools ranked highest by the LaPorte Score Card were compared to the two schools ranked lowest.

To estimate the degree of agreement between judges' responses to the LaPorte Score Card, a coefficient of agreement called Cohen's k was employed. The coefficient makes the following three assumptions: (1) that the units are independent; (2) the categories are independent, mutually exclusive, and exhaustive; and (3) the judges operate independently. Cohen suggests that in the typical situation relying upon judgment there is no criterion for "correctness" of judgments and the judges are deemed equally competent to make judgments. As Cohen describes his coefficient of agreement, there are only two relevant quantities; namely, P_0 = the proportion of units in which the judges agreed and

P_c = the proportion of units in which agreement is expected by chance. Cohen defines k as the "proportion of agreement after chance agreement is removed from consideration" (4:40).

The formula is as follows:

$$k = \frac{P_o - P_c}{1 - P_c} .$$

CHAPTER IV

ANALYSIS OF DATA

The purpose of this study was to determine the status of physical education in schools of the Big Eight Athletic Conference. Test results and statistical information compiled from the LaPorte Score Card, Elder P (M) F Test, McCloy GMA Test, Stradtman Test of Physical Fitness Knowledge, and the Kneer Attitude and Diagnostic Inventory reflected the status of physical education in the eight schools studied.

I. STATUS OF PHYSICAL EDUCATION--

LAPORTE SCORE CARD

The first purpose of this study was to assess the status of physical education programs in the schools of the Big Eight Athletic Conference as judged by the chief school administrators or their designates and by the women in charge of the girls' physical education programs. Independent judgments were made by the principals and the girls' chairmen. The LaPorte Score Card is a survey instrument of one hundred statements with a maximum total of three hundred points.

In order to reflect as accurate a picture as possible of the physical education program, an average of the principal and teacher's score was taken for each school. Unless

otherwise indicated, the score-card results in the figures and tables in this chapter are an average of the principal's and the teacher's score for each school. Schools are designated A, B, et cetera, according to the total number of points scored on the LaPorte Score Card, with School A being the top school and School H being the low school.

Figure 1 represents a summary of the score card attainment for each school. Ratings for each area of the score can better be gauged by the following standards: 10 points = fair or minimum, 20 points = good or average, and 30 points = superior or ideal programs. Figure 1 illustrates the strengths and weaknesses of the schools in each area of the score card.

Status of Physical Education as Judged by the Principal

In the eight schools studied, the principals judged their programs as 58% effective. The mean score for all eight schools was 174 with a standard deviation of 34+ points. The range of scores was 108 points, from a low of 117 points for School H to a high of 225 points for School A. The range of scores represents 36% of the possible score on the entire score card. Table I illustrates the ratings given by the principals.

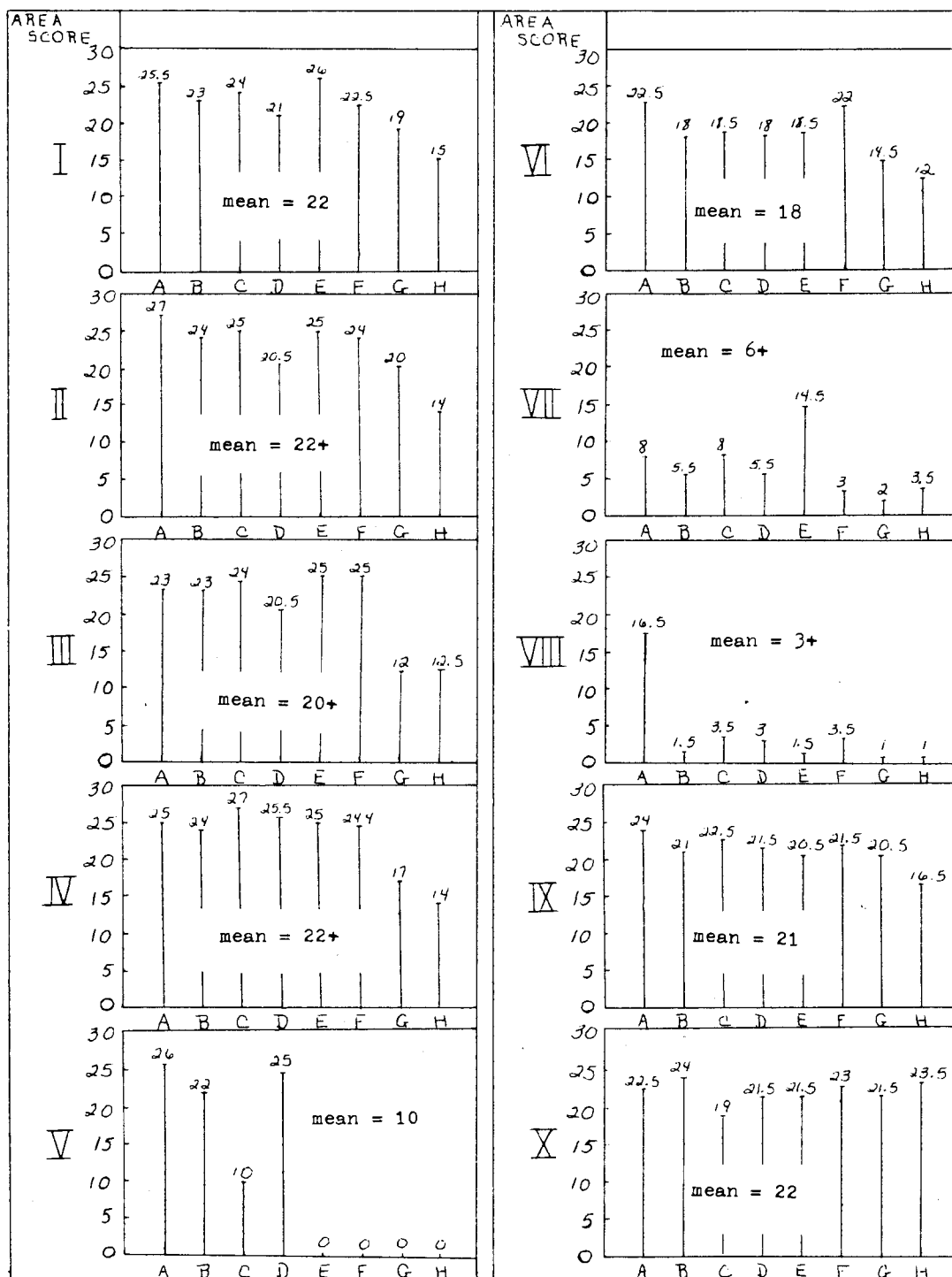


FIGURE 1

LAPORTE SCORE CARD AREA SCORES

CAPITOL LETTERS ON THE ABCISSA REPRESENT THE SCHOOLS WHICH
HAVE BEEN RANKED IN ORDER OF LAPORTE SCORE CARD ATTAINMENT

Status of Physical Education as Judged by the Department Chairman

The girls' department chairmen judged their programs as being 54.7% effective. As seen in Table I, the mean score for the department chairmen was 164+ points with a standard deviation of 30+ points. Range of scores was 108 points, from a low of 107 points for School H to a high of 215 points for School A.

Status of Physical Education as Judged by an Average of the Ratings of Principal and Department Chairman

Schools were judged to be 56.3% effective by an average of the principal and department chairman's ratings. The mean score for the eight schools was 169 points with a standard deviation of 32 points. Range of scores was 108 points, from a low of 112 points for School H to a high of 220 points for School A. The difference between the mean judgments of the principal and mean judgments of the teacher was 10 points. The range of difference extended from a low of 0 points for School B to a high of 31 points for School D.

II. PERFORMANCE TESTS

The second purpose of this study was to determine the physical fitness performance, motor skills performance, physical fitness knowledge, and attitudes toward physical

TABLE I
SCORE CARD AND PERFORMANCE TEST MEANS

LaPorte Score Card Totals				Physical Fitness	Motor Skills	Knowledge	¹ PE Att.	² Diag. State.
School	Principal	Teacher	Average	Elder P(M)F	McCloy GMA	Stradtman PF	Kneer	
A	225	215	220	373	239	74	162	100
B	186	186	186	315	194	75	157	104
C	193	172	182.5	387	221	73	159	101
D	196	165	180.5	367	238	51	146	96
E	180	175	177.5	377	226	74	165	110
F	175	162	168.5	380	208	53	167	113
G	123	132	127.5	347	201	77	160	99
H	117	107	112	335	193	72	162	102
Mean	174.4	164.3	169.3	360.1	215	68.6	159.8	103.1
S.D.	34.4	30.7	32.2	23.5	14.3	9.7	6.0	5.3

¹ = Physical Education Attitude

² = Diagnostic Statements

education possessed by sophomore students in each of the schools studied. Figure 2 illustrates the performance test results and also shows each school's relationship to the mean score and standard deviation for each test.

Elder Physical Motor Fitness Test

This 5-item test is composed of the following: modified push-ups, standing broad jump, dodge run, squat thrusts, and trunk flexion. Dr. Everett Irish of Central Washington State College compiled a standard score scale for girls on the Elder Test. As seen in Table I, the mean score for this test was 360 points with a standard deviation of 23+ points. The range of scores was 72 points, with a low of 315 points for School B to a high of 387 points for School C. The range of 72 points equals 14.5% of the standard score scale and the mean performance equals 72% of the possible score.

McCloy General Motor Achievement Test

This test was composed of the following items: standing broad jump, 50 yard dash, basketball throw, and modified pull-ups. As the tests were scored, it became apparent that the modified pull-ups varied greatly by schools indicating a strong suspicion of differences in administration of this test. McCloy states that a "sufficiently high coefficient of correlation between arm strength as measured by a dynamometer and the pull-up

push-up strength score has not been obtained for push-ups and pull-ups to be considered valid tests of strength" (11:134). On the basis of McCloy's statement and the writer's observations, it was decided to eliminate the modified pull-ups and score the remaining items as usual on McCloy's universal scoring table.

Mean score for this test was 215 points with a standard deviation of 14 points. School H had a low of 193 points and School A had the high total with 239 points, thus the test had a range of 46 points. Since there were no upper or lower limits on this test, the highest individual and lowest individual scores attained were used to approximate the high and low achievement scale for this test. With the high and low scores being 356 points and 97 points respectively, the mean score of 215 points shows a 60% attainment of possible.

Stradtman Test of Physical Fitness Knowledge

This test was composed of one hundred multiple choice questions concerning the following: (1) meaning of physical fitness, (2) physique and organic fitness, (3) cardiovascular and respiratory fitness, (4) motor fitness, (5) personal hygienic habits, and (6) guidance. Mean score for this test was 68+ points and a standard deviation of 9+ points was recorded. The range of the scores was 26 points,

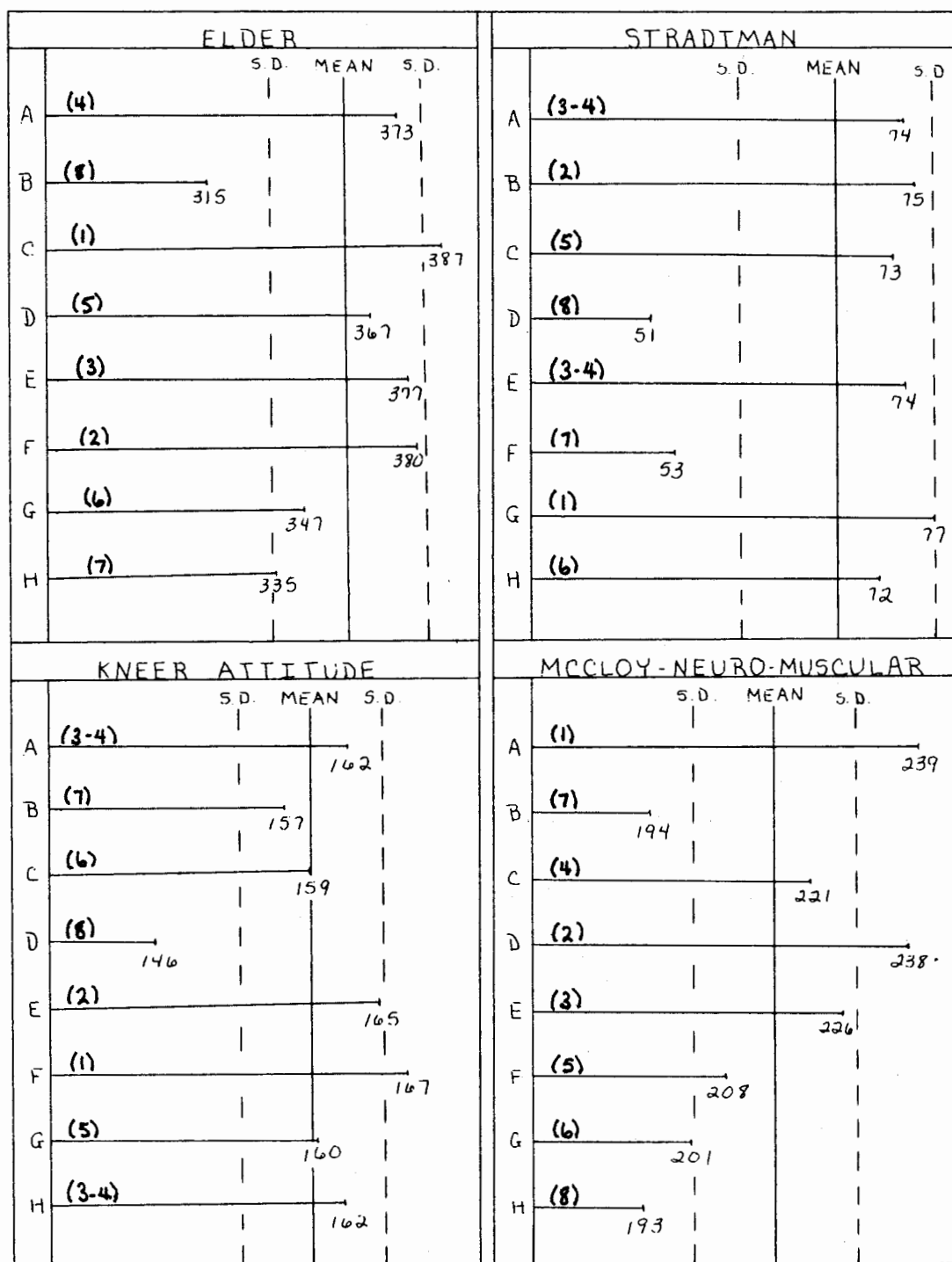


FIGURE 2

PERFORMANCE TEST SCORES AND SCHOOL RANK

Left Column = LaPorte Rank Middle Column = Order of Rank Right Column = Points Scored

with a high of 77 points for School G and a low of 51 points for School D. The range of 26 points was equal to 26% of the possible score and with a mean of 68 points for this test it indicates 68% attainment of the possible score.

Kneer Attitude and Diagnostic Inventory

The attitude test consisted of forty statements, half of which were worded positively and the other half worded negatively. Statements were given a value of from one to five points with the total number of points scored indicating the intensity of feeling about physical education. The scale of points for this test starts at 40 points and goes to a high of 200 points. Mean score for the eight schools was 159+ points and with a standard deviation of 6 points. The range of scores equals 21 points with School D having a low of 146 points and School F a high of 167 points. The range was equal to 11% of the possible score and the average attitude attainment was 80%.

The diagnostic part contained thirty statements regarding the physical education program in which the student was participating. This test was scored the same as the attitude test and the highest possible score was 150 points, with 30 points being the low possible. The mean score for this test was 103 points and it has a standard deviation of 5+ points. The range was 17 points which was

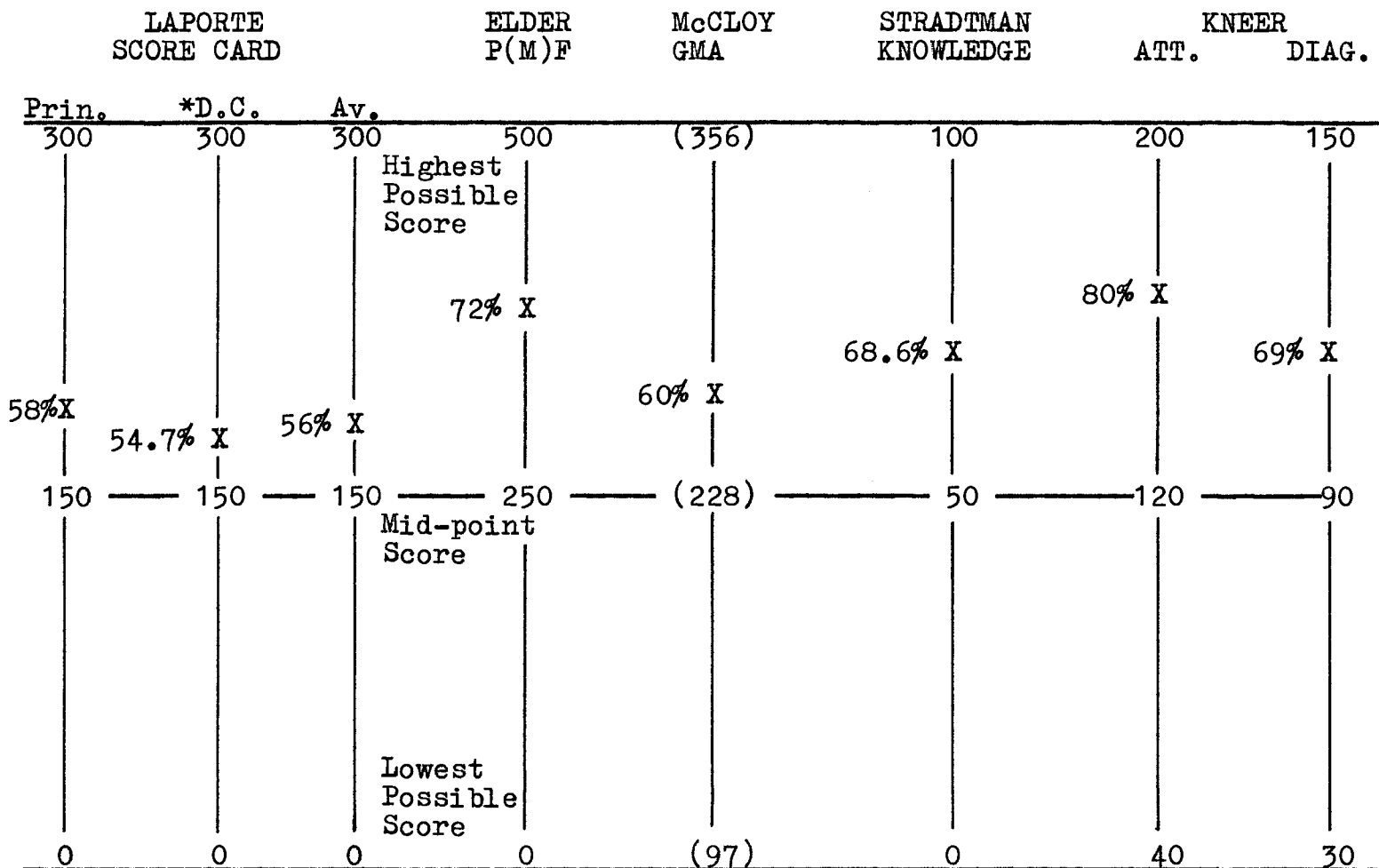
11% of the possible score. School D had a low of 96 points and School F had a high of 113 points. Average attainment for this test was 69%.

III. JUDGMENT OF PROGRAM VERSUS STUDENT PERFORMANCES

The third purpose of this study was to determine the direction and magnitude of differences which exist between perceptions of the school programs as seen by those who administer the programs and the performance outcomes of those respective programs as displayed by the participants. The LaPorte Score Card No. II was used to assess the physical education program as seen by the department chairmen and the principals. The other judgment value resulted from the student scores on the performance tests. The results of tests of physical fitness, general motor achievement, knowledge and attitude toward physical education as possessed by a representative sophomore class at each of the eight schools will be contrasted to the judgments of the principals and the department chairmen.

Comparison of Means of All School

Percentage attainment by the students on each of the four tests was contrasted with attainment on the LaPorte Score Card No. II in Figure 3. Summarizing Figure 3 would indicate the following conclusions.



*D.C. = Department Chairmen

FIGURE 3

PERCENTAGE ATTAINMENT OF POSSIBLE ON LAPORTE SCORE CARD
AND STUDENT PERFORMANCE TESTS

One, principals tended to rate their girls' programs higher than the department chairmen (6 out of 8 times).

Two, the average rating attained on the LaPorte Score Card No. II was 56% which is compared to 28% for schools nationwide during the period 1950-1954. This average of 56% was 1% higher than the average rating of boys' programs and compared with 4% superiority of girls' programs over boys' programs reported by Tinkle in the Texas study.

Three, each of the five mean percentages on the tests administered to the girls represented higher attainment than that shown for the score card.

Four, the McCloy GMA representing motor ability rated the lowest of the performance tests in attainment.

Five, the Kneer Attitude Inventory rated the highest in attainment with 80% of the possible score.

Comparison of Means of Upper Two Schools Versus Lower Two Schools

Table I showed that the four middle schools (C, D, E, and F) varied only 14 points on the LaPorte Score Card. Since these four middle schools were so close in score card ratings, the upper two schools and the lower two schools were contrasted on each of the four performance tests. A t ratio test was used to determine the significance of difference between mean scores of the upper two schools and the lower

two schools. Table II summarizes the following conclusions.

Elder P(M)F test. School A had a mean of 373 points and was 26 points higher than School G and 38 points higher than School H. The resulting t 's were 2.59 and 4.16, respectively. Both t ratios were significant with the first at the .05 level and the second at the .01 level. School B was 32 points below School G and 20 points below School H. The t 's were 2.50 and 1.70 with the first t being negatively significant at the .05 level and the second t was not significant.

McCloy General Motor Achievement test. School A with a mean of 239 points ranked first and led School G by 38 points and School H by 45 points. The t ratios were 3.01 and 3.81 with both being significant at the .01 level. School B had a mean of 194 and was 7 points below School G and only 1 point superior to School H. The resultant t 's were .57 and .05 with neither being significant.

Stradtman Test of Physical Fitness Knowledge. School A with a mean of 74 points was 3 points below School G and 2 points above the mean of School H. Resulting t 's of .96 and .78 were not significant. School B with a mean of 75 points was 2 points below School G and 3 points above School H. The resulting t 's were .62 and 1.08 with neither being significant.

TABLE II
SIGNIFICANCE OF DIFFERENCE BETWEEN PERFORMANCE SCORE MEANS OF
SCHOOLS RANKED AT OPPOSITE ENDS OF THE LAPORTE SCORE CARD

School	School G	School H	diff	SE _{diff}	*df	<u>t</u>	Level
ELDER P(M)F TEST							
A 373.4	346.9		26.5	10.22	63	2.59	.05
A 373.4		335.2	38.2	9.18	69	4.16	.01
B 314.7	346.9		-32.2	12.88	60	2.50	.05
B 314.7		335.2	-20.5	12.07	66	1.70	--
McCLOY TEST OF GENERAL MOTOR ACHIEVEMENT							
A 239	201		38	12.61	61	3.01	.01
A 239		193.4	45.6	11.96	67	3.81	.01
B 194	201		- 7.0	12.34	60	.57	--
B 194		193.4	.6	11.67	66	.05	--

*For 60 df (up to 120 df) the t ratio must equal 1.99 to be significant at the .05 level of confidence.

TABLE II (continued)

School	School G	School H	diff	SE _{diff}	df	t	Level
STRADTMAN TEST OF PHYSICAL FITNESS KNOWLEDGE							
A	74.3	77.2	-2.9	3.01	63	.96	--
A	74.3	71.8	2.5	3.20	72	.78	--
B	75.3	77.2	-1.9	3.06	62	.62	--
B	75.3	71.8	3.5	3.24	71	1.08	--
KNEER ATTITUDE INVENTORY							
A	161.7	159.8	1.9	4.85	60	.39	--
A	161.7	161.8	- .1	4.54	66	.02	--
B	157.8	159.8	-2.0	4.05	63	.49	--
B	157.8	161.8	-4.0	3.68	69	1.08	--
KNEER DIAGNOSTIC STATEMENTS							
A	99.9	98.7	1.2	2.95	60	.41	--
A	99.9	101.6	-1.7	2.65	66	.64	--
B	104.4	98.7	5.7	2.98	63	1.91	--
B	104.4	101.6	2.8	2.68	69	1.05	--

Kneer Attitude and Diagnostic Inventory. On the Attitude Inventory School A had a mean of 162 points and was 2 points above School G and the same as School H. The resulting t 's of .39 and .02 were not significant. School B with a mean of 158 points was 2 points below School G and 4 points below School H. The resulting t 's of .49 and 1.08 were not significant.

On the Diagnostic Statements School A had a mean of 100 points and was 1 point above School G and 2 points below School H. The t 's of .41 and .64 were not significant. School B with a mean of 104 points was 6 points above School G and 3 points above School H. With t 's of 1.91 and 1.05 neither t ratio was significant.

IV. COMPARISON OF PROGRAM JUDGMENTS

The fourth purpose of this study was to determine the degree of agreement in perception of program status between the school principal and each department chairman and between the boys' chairmen and the girls' chairmen. Since the responses on the LaPorte Score Card were limited to values of 0, 1, 2, and 3 considerable difficulty was encountered in finding an adequate coefficient of correlation that would portray the degree of agreement. Finally Cohen's k , a coefficient of agreement, was located and was

used to compare the coefficients of agreement for each area of the score card.

Agreement Between Girls' Chairmen and Principals

Table III summarizes the coefficients of agreement computed for all the schools and also for the upper two schools and the lower two schools as ranked by the LaPorte Score Card. Data from Table III permits the following conclusions to be made.

All schools. Table III indicated that the coefficients of agreement between the principals and the department chairmen were quite low in most areas. Three areas of the score card had coefficients of agreement which were considerably higher than the remaining areas. Largest coefficients of agreement were found for Areas 6, 9, and 10 which were Supplies and Equipment, Organization and Administration of Class Programs, and Administration of Intramural and Interschool Athletics. These coefficients of agreement ranged from .540 to .638. Six of the remaining areas ranged from a low of .336 to .388 on their coefficients of agreement. Area 5 (Swimming Pool) was not used for comparative purposes because of the lack of responses in this area. Narrow confidence limits of agreement between judgments was indicated by the smallness of σk_0 in all areas except #8. The σk_0 is the denominator in the

TABLE III
COEFFICIENTS OF AGREEMENT (COHEN'S $k \pm \sigma k_0$)
LAPORTE SCORE CARD AREAS
GIRLS' DEPARTMENT CHAIRMEN VERSUS PRINCIPALS

Area	All Schools	1z	2S/L	Upper Two Schools	z	S/L	Lower Two Schools	z	S/L
1	.387 \pm .08	4.72	.01	.367 \pm .17	2.16	---	.398 \pm .14	2.84	.05
2	.388 \pm .09	4.51	.01	.452 \pm .19	2.38	.05	.268 \pm .15	1.79	---
3	.361 \pm .08	4.75	.01	.429 \pm .21	2.15	---	.398 \pm .14	2.84	.05
4	.353 \pm .09	3.97	.01	.288 \pm .21	1.37	---	.310 \pm .12	2.58	.05
5	---		----	---		----	---		----
6	.543 \pm .06	8.62	.01	.195 \pm .12	1.63	---	.500 \pm .16	3.13	.01
7	.363 \pm .11	3.33	.05	.241 \pm .16	1.51	---	.688 \pm .46	1.50	---
8	.336 \pm .16	2.07	---	-.023 \pm .05	.43	---	1.000 \pm .31	3.23	.01
9	.638 \pm .08	7.60	.01	.718 \pm .20	3.59	.01	.494 \pm .16	3.09	.01
10	.540 \pm .08	6.43	.01	.342 \pm .18	1.90	---	.351 \pm .17	2.06	---
	6 df = $\frac{2.45}{3.71} = .05$ level = .01 level			12 df			12 df = $\frac{2.18}{3.06} = .05$ level = .01 level		

$$1z = \frac{k}{\sigma k_0}$$

2S/L = Significance Level

equation $Z = \frac{k}{\sigma k_0}$ which showed that all areas except #8 were significantly different from zero. Area 8 was Medical Examination and Health Service.

Upper and lower schools. All the information in this section comes from the findings found in Table III. In Areas 1, 3, 4, and 10 the lower two schools had similar coefficients of agreement to the upper two schools. These areas were Program of Activities, Indoor Areas, Locker and Shower Areas, and Administration of Intramural and Interschool Athletics. The coefficients of agreement in the preceding areas were fairly low, ranging from .288 to .398, indicating a low level of agreement between judges. Only in Areas 2 and 9 did the upper two schools agree considerably more than the lower two schools. Area 2 had a coefficient of agreement of .452 which indicated a fair degree of agreement, but Area 9 with .718 rating showed a good degree of agreement for the upper two schools. The preceding two areas were Outdoor Areas and Organization and Administration of Class Programs. The lower schools had their highest coefficients of agreement in Areas 6, 7, and 8 which were Supplies and Equipment, Medical Examination and Health Service, and Modified-Individual Activities. Area 8 had a perfect agreement of 1.0 as all the responses agreed, but all were of zero value except for one question which was ranked as one. This indicated that Area 8 was virtually non-existent in practice.

In the lower schools, all the coefficients were statistically significantly different from zero except for the following three areas: Area 2 (Outdoor Areas), Area 7 (Medical Examination and Health Service), and Area 10 (Administration of Intramural and Interschool Athletics). For the upper schools, two areas were statistically significantly different from zero. These two areas were Area 2 (Outdoor Areas) and Area 9 (Organization and Administration of Class Programs).

Comparison of coefficients for all schools versus upper and lower schools. As seen in Table III, Area 1 (Program of Activities) was the only area with similar coefficients of agreement for all schools, upper schools, and lower schools. All schools were similar in agreement with the upper schools in Areas 3 and 4 which were Indoor Areas and Locker and Shower Areas. Areas 6, 8 and 10 showed little or no similarity in coefficients of agreement between all schools versus upper two schools. These areas were Supplies and Equipment, Modified-Individual Activities and Administration of Intramural and Interschool Athletics. With coefficients of agreement for all schools being similar to neither upper or lower schools in Area 8, indications were that the middle-ranked schools influenced the coefficients of agreement in that Area.

Agreement between girls' chairmen and boys' chair-

men. The following conclusions have been made from the data in Table IV. None of the coefficients of agreement were very high with Areas 6 and 9 being the highest (.457 and .411). Those areas were Supplies and Equipment and Organization and Administration of Class Programs. The two lowest areas of agreement were Area 8 (Modified Activities) and Area 4 (Locker and Shower Areas) showing extremely low levels of agreement with .050 and .156 ratings. In all nine score card areas compared, the σk_0 was small, indicating that some agreement did exist and seven of these areas showed Z ratios that statistically were significantly different from zero.

TABLE IV
 COEFFICIENTS OF AGREEMENT (COHEN'S $k \pm \sigma k_0$)
 LAPORTE SCORE CARD AREAS
 GIRLS' DEPARTMENT CHAIRMEN VERSUS BOYS' DEPARTMENT CHAIRMEN

Score Card Areas	All Schools	$z = \frac{k}{\sigma k_0}$	Significance Level
1	.244 \pm .074	3.30	.05
2	.384 \pm .078	4.92	.01
3	.366 \pm .078	4.69	.01
4	.156 \pm .087	1.79	---
5	----	----	---
6	.457 \pm .067	6.82	.01
7	.334 \pm .114	2.93	.05
8	.050 \pm .106	.47	---
9	.411 \pm .077	5.34	.01
10	.285 \pm .070	4.07	.01

For 6 df, 2.45 = .05 level
 3.71 = .01 level

CHAPTER V

I. GENERAL SUMMARY AND CONCLUSIONS

Purpose One--Program Status by LaPorte Score Card

Table I indicated that the principals tended to rate their programs slightly higher than the girls' department chairmen, the difference between the two judging groups being 10 points. Scores ranged from 0 to 31 points difference with the department chairmen rating higher in only one instance. Schools C and D had a difference of 21 points and 31 points respectively between the principal and the department chairman. This difference represented two times and three times more than the mean difference for the judgments. Both of the high ratings were given by the principal.

Mean percentage attainment on the LaPorte Score Card was 56%, equivalent to a percentile rank of 98, according to Bookwalter's national survey. The range of LaPorte scores was 108 points which is equivalent to 36% of the entire score card.

General Conclusions

Even though the schools had a 56% attainment on the score card, which is equivalent to a percentile rank of 98, it should be noted that Bookwalter's cumulative frequency curve was based on a nationwide attainment of only 28%

(2:5). The average score for this study was barely above half of what an ideal program should be. The large difference in judgments between principal and department chairman for Schools C and D indicates a need for re-examination of program perceptions in these two schools.

Purpose Two--Participant Status by Performance Tests

As seen in Figure 3, the following were the mean performances in terms of percentage of attainment possible, with the range of difference between schools given as a percentage of the entire score scale in parentheses:

Elder P(M)F Test--Physical Fitness	: 72% (14.5%)
McCloy GMA Test--Motor Skills	: 60% (18%)
Stradtman Test--Knowledge	: 68% (26%)
Kneer Inventory--Attitude	: 80% (11%)
Kneer Inventory--Diagnostic Statements	: 69% (11%)

Conclusions

The highest percentage attainment of possible was on the test of attitude toward physical education. The mean for this study was 80% of possible or 159 points and was also 159 points for sophomores in the Kneer study. The lowest attainment percentage was on the test of motor ability which is a most vital objective in physical education. A mean score of 68% on the physical fitness knowledge test

was 3 percentage points higher than the girls Stradtman tested in 1947.

Purpose Three--Program Status by Score Card Versus Performance Tests

Attainment percentage on the performance tests was higher than the attainment on the LaPorte Score Card. In both the LaPorte Score Card and performance tests mean attainment in percentage possible was above the mid-scale or 50% level. The score card was reliable as an indicator of performance status for only one of the two top schools when schools scoring at opposite ends of the score card were compared. The following conclusions were based on Table II.

General Conclusions

School A was significantly superior to the two bottom-ranked schools on the Elder P(M)F Test and the McCloy GMA Tests. However schools G and H were superior to School B on the Elder P(M)F Test, school H significantly so. In three comparisons one top-ranked school (A) significantly outscored the two bottom-ranked schools at the .01 level of confidence and in one comparison at the .05 level of confidence.

In one comparison a bottom-ranked school (G) significantly outscored one top-ranked school (B) at the .05 level of

confidence. In nine of the twenty comparisons the bottom-ranked schools outscored the top-ranked schools.

Purpose Four--Program Judgment Between Principals and Chairmen

Cohen's coefficient of agreement between girls' chairmen and principals for all schools indicated rather low coefficients except in Areas 6 (Supplies and Equipment), 9 (Organization and Administration of Class Programs), and 10 (Administration of Intramural and Interschool Athletics) where the coefficients were much higher. The ratio of $\frac{k}{\sigma k_0}$ resulted in eight of the ten score card area coefficients being statistically significant at the .05 level of confidence or better.

Application of Cohen's coefficient of agreement to the upper two schools indicated only three coefficients which were appreciably higher than coefficients for all the schools. Coefficients for the two upper schools were appreciably lower than for all schools in five score card areas. Cohen's coefficient indicated that the lower schools had appreciably greater agreement on two areas than all the schools. Score card Area 8, Medical Examination and Health Service, had a coefficient of agreement of 1,000 for the lower two schools inasmuch as both judges agreed on a rating of zero on nine of the ten questions and on a rating of 1

on another. For the upper two schools the coefficient for Area 8 was $-.023$ indicating virtually no agreement. Only two of the ten coefficients were statistically significant in contrast to six among those for the lower two schools.

General Conclusions

Comparisons of coefficients between principals and girls' chairmen for upper and lower-ranked schools formed no definite pattern. Coefficients for the girls' chairmen versus the boys' chairmen were not high, but most were significant.

II. SCHOOL BY SCHOOL FINDINGS AND RECOMMENDATIONS

School A

Strengths and weaknesses. School A had a high level of attainment on the LaPorte Score Card indicating a better than average program. Performance tests results were higher than the mean on the four major tests with the only score below the mean on the diagnostic portion of the Kneer Test. There appear to be no program weaknesses.

Recommendations. Judgments and tests should be frequently administered to assure continued high quality.

School B

Strengths and weaknesses. Score card attainment

LaPorte	Elder	McCloy	Stradtman	Attitude	Kneer Diagnostic
— <u>220</u> —	387 —	— <u>239</u> —	77 —	167 —	113 —

74

373

162

M— 169 — 360 — 215 — 68+ — 159+ — 103 —

100

— 112 — 315 — 193 — 51 — 146 — 96 —

FIGURE 4

SCHOOL SCORES AND RELATIVE PLACEMENT ON LAPORTE
SCORE CARD AND STUDENT PERFORMANCE TESTS
SCHOOL A

LaPorte	Elder	McCloy	Stradtman	Attitude	Kneer Diagnostic
— 220 —	— 387 —	— 239 —	— 77 —	— 167 —	— 113 —

75186104

M— 169 — 360 — 215 — 68+ — 159+ — 103 —

157194— 112 — 315 — 193 — 51 — 146 — 96 —

FIGURE 5

SCHOOL SCORES AND RELATIVE PLACEMENT ON LAPORTE
 SCORE CARD AND STUDENT PERFORMANCE TESTS
 SCHOOL B

indicated a better than average program. School B was very weak on physical fitness and motor ability attainment and was about average on the attitude test. Physical fitness knowledge was quite high.

Recommendations. Strong and continued emphasis needs to be placed on physical fitness and motor ability in the physical education program as these two objectives are the heart and soul of the physical education program.

School C

Strengths and weaknesses. LaPorte Score Card attainment indicated slightly above average program. On the performance tests, School C finished above the mean on all but the diagnostic portion of the Kneer Test, indicating above average performance tests results.

Recommendations. Score card results need to be studied and the individual weak areas noted for future improvement. Disparity of 21 points between principal and girls' department chairman indicate a need to discuss points of judgment between the two.

School D

Strengths and weaknesses. LaPorte Score Card results indicate a slightly above average program. Elder

LaPorte	Elder	McCloy	Stradtman	Attitude	Kneer Diagnostic
— 220 —	<u>387</u>	— 239 —	— 77 —	— 167 —	— 113 —

73

182.5

221

M — 169 — 360 — 215 — 68+ — 159+ — 103 —

101

— 112 — 315 — 193 — 51 — 146 — 96 —

FIGURE 6

SCHOOL SCORES AND RELATIVE PLACEMENT ON LAPORTE
SCORE CARD AND STUDENT PERFORMANCE TESTS
SCHOOL C

LaPorte	Elder	McCloy	Stradtman	Attitude	Kneer Diagnostic
— 220 —	— 387 —	— 239 —	— 77 —	— 167 —	— 113 —
		<u>238</u>			

180.5 367
M — 169 — 360 — 215 — 68+ — 159+ — 103 —

— 112 — 315 — 193 — 51 — 146 — 96 —

FIGURE 7

SCHOOL SCORES AND RELATIVE PLACEMENT ON LAPORTE
SCORE CARD AND STUDENT PERFORMANCE TESTS
SCHOOL D

and McCloy test results are both well above the mean scores. School D had the lowest scores on the physical fitness knowledge test and on both portions of the Kneer Test.

Recommendations. The extreme low score on the physical fitness knowledge test indicates a definite need for improvement of this area of the program. An effort should be made to determine why the attitude score was low and an attempt made to improve this among students. The disparity of 31 points between principal and girls' chairman was the greatest in the conference and definitely indicates a need for mutual discussion of program standards.

School E

Strengths and weaknesses. LaPorte Score Card attainment indicated a slightly above average program. School E was well above the mean for all four performance tests indicating good achievement in this phase of the study. Area 5, Swimming Pool, was the real weakness on the score card.

Recommendations. Performance results indicate a well organized program. The addition of swimming to the program would strengthen the score card rating.

LaPorte	Elder	McCloy	Stradtman	Attitude	Kneer Diagnostic
— 220 —	— 387 —	— 239 —	— 77 —	— 167 —	— 113 —

37774165110226177.5

M—169 — 360 — 215 — 68+ — 159+ — 103 —

— 112 — 315 — 193 — 51 — 146 — 96 —

FIGURE 8

SCHOOL SCORES AND RELATIVE PLACEMENT ON LAPORTE
SCORE CARD AND STUDENT PERFORMANCE TESTS
SCHOOL E

School F

Strengths and weaknesses. LaPorte Score Card attainment was at the mean. School F varied greatly on the performance tests results. Attitude was rated tops, but physical fitness knowledge was extremely low. The score card attainment was lowered by not having a swimming pool.

Recommendations. A definite emphasis is needed on physical fitness knowledge and swimming needs to be added to the program. Increased attention should be paid to development of general motor ability.

School G

Strengths and weaknesses. LaPorte Score Card attainment was quite low which indicated a definitely below average program. Only two of the performance test scores were above the mean. Physical fitness and general motor ability performance were low. School G had the highest level of achievement on the physical fitness knowledge test.

Recommendations. The score card needs to be studied area by area and improvement in total program is definitely needed. Physical fitness and general motor ability are the core of physical education and definitely need improvement.

LaPorte	Elder	McCloy	Stradtman	Attitude	Kneer Diagnostic
— 220 —	— 387 —	— 239 —	— 77 —	— <u>167</u> —	— <u>113</u> —

380

M— 169 — 360 — 215 — 68+ — 159+ — 103 —
168.5

208

53

— 112 — 315 — 193 — 51 — 146 — 96 —

FIGURE 9

SCHOOL SCORES AND RELATIVE PLACEMENT ON LAPORTE
 SCORE CARD AND STUDENT PERFORMANCE TESTS
 SCHOOL F

LaPorte	Elder	McCloy	Stradtman	Attitude	Kneer Diagnostic
220	387	239	<u>77</u>	167	113

M-169 — 360 — 215 — 68+ — $\frac{160}{159+}$ — 103 —

347

99

201

127.5

— 112 — 315 — 193 — 51 — 146 — 96 —

FIGURE 10

SCHOOL SCORES AND RELATIVE PLACEMENT ON LAPORTE
SCORE CARD AND STUDENT PERFORMANCE TESTS
SCHOOL G

School H

Strengths and weaknesses. This school had the lowest score on the LaPorte Score Card and must be classified as a minimum program. Physical fitness and motor ability scores were areas of weakness also. Physical fitness knowledge and attitude rate fairly strong for a school so low on the score card.

Recommendations. A thorough study of the score card results is indicated and definite need for program improvement is apparent. Physical fitness and motor ability scores indicate a definite need for immediate improvement, too.

LaPorte	Elder	McCloy	Stradtman	Attitude	Kneer Diagnostic
— 220 —	— 387 —	— 239 —	— 77 —	— 167 —	— 113 —

72162

M — 169 — 360 — 215 — 68+ — 159+ — 103 —

102335

— 112 — 315 — 193 — 51 — 146 — 96 —

FIGURE 11

SCHOOL SCORES AND RELATIVE PLACEMENT ON LAPORTE
SCORE CARD AND STUDENT PERFORMANCE TESTS
SCHOOL H

III. RECOMMENDATIONS FOR FURTHER STUDY

1. Survey other athletic conferences with the LaPorte Score Card.
2. Investigate the amount of money budgeted for physical education programs versus LaPorte Score Card findings.
3. A complete study involving indoor facilities and locker and shower areas with emphasis on square footage available for use.
4. The results of this study should be used by each school to assess its own program in order to improve that program.

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APPENDIX

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THE PHYSICAL EDUCATION CURRICULUM

HEALTH AND PHYSICAL EDUCATION SCORE CARDS

Card No. II - Secondary Schools

INSTRUCTIONS FOR USE OF SCORE CARDS

NATURE OF THE CARDS.

These cards are intended as measuring devices for purposes of evaluating the physical education program and the general health, recreation, and safety provisions of an entire school. Independent ratings of the school's standings on the LaPorte Score Card should be made by the principal or vice principal and by the respective department chairmen for boys and girls. The ratings will be made at the time of the interview by the authors and the respective school personnel. The purpose is to center attention upon the characteristics of a good program and to provide opportunity for a school to compare its offering somewhat objectively with these characteristics. The evaluation should serve to disclose significant weaknesses that are subject to improvement, rather than to present merely a critical rating of the school.

THE RATING STANDARDS.

The standards presented in these score cards are based on the twenty-three year study by the Committee on Curriculum Research of the College Physical Education Association. Preliminary score cards were formulated by the chairman from the committee findings, and submitted for critical evaluation to a selected jury of 150 leading state, city, and rural supervisors and administrators of physical education throughout the United States. Their varied criticisms served as the basis for reconstructing the cards in their present form.

In order to keep the standards as flexible as possible for adaptation to schools of all sizes, it was necessary to resort to subjective scoring for some items. It was also

necessary in some cases, for the sake of brevity, to include a number of important characteristics under a single standard.

SCORING PROCEDURE

The rating standards are intended to represent a range from a fair-maximum program to a superior-ideal program: (For example, in the No. II Scorecard, 100=fair-minimum; 200=good-average; 300=superior-ideal). If desired, the scores can be reduced to percentages, as indicated in the summary sections. In most cases a given item should range from one to three points if the program is at all acceptable. If it does not approximate even one point, however, the score should be listed as zero. Scores should represent the unprejudiced judgment of the rater in order to give a reasonably fair picture of the program.

Items have not been weighed relatively (except for a few in the elementary card), because it is almost impossible to determine comparative values, where all factors are of great importance. Only the most significant characteristics of program content, facilities, or administrative procedures have been included in these standards, hence each one is of great importance.

It is recommended that raters skim through the score card to get a general picture of all its phases before starting the detailed rating.

HEALTH AND PHYSICAL EDUCATION SCORE CARD

No. II

FOR JUNIOR AND SENIOR HIGH SCHOOLS AND
FOUR-YEAR HIGH SCHOOLS

NAME OF SCHOOL _____ ADDRESS _____

Jr., Sr., or 4-Yr. School _____ PRINCIPAL _____

Rating for school year _____ Rated by _____ Date _____

Number of students enrolled: Boys _____ Girls _____

Score Card SummaryPossible Score - Score*

I.	Program of Activities	30
II.	Outdoor Areas	30
III.	Indoor Areas	30
IV.	Locker and Shower Areas	30
V.	Swimming Pool	30
VI.	Supplies and Equipment	30
VII.	Medical Examination and Health Service	30
VIII.	Modified-Individual (Corrective) Activities	30
IX.	Organization and Administration of Class Programs	30
X.	Administration of Intramural and Interscholar Athletics	30

Total Possible Score 300 Total
Actual _____

Percentage Score (Actual ÷ 3) = _____

*Each item is to be scored 1, 2, or 3 according to scales indicated in parentheses. In the subjective scores (fair, good, and excellent), raters should make unprejudiced evaluations. If conditions are approximate but not exact, give estimated equivalent score.

I. PROGRAM OF ACTIVITIES

Possible Score = 30. Actual Score = _____

1. Content of core and elective programs is distributed over gymnastics, rhythms, aquatics, individual sports (including defense activities), and team sports.
(Not less than 6% of time to each of the five types = 1; not less than 9% = 2; not less than 12% = 3)

SCORE _____

2. Program calls for systematic class instruction in activity fundamentals on the "block" or "unit of work" basis (continuous daily instruction in an activity for from three to six weeks).
(Definite, but unsystematic instruction = 1; systematic instruction in other than block program = 2; systematic block instruction = 3)

SCORE _____

3. Daily participation in physical and/or health education class instruction periods of from 45 to 60 minutes is required of all students.
(Two days a week = 1; four days = 2; five days = 3)

SCORE _____

4. Participation in intramural sports in addition to class instruction is available for all students.
(Fair program = 1; good = 2; excellent = 3)

SCORE _____

5. Detailed yearly program (course of study, including special objectives) for each grade level is on file in Principal's Office and activity schedules are posted on gymnasium office bulletin boards.
(Fair program = 1; good = 2; excellent = 3)

SCORE _____

6. A course of study committee (men and women) gives consideration at least annually to needed revisions in the program.
(Fairly active = 1; active = 2; very active = 3)

SCORE _____

7. Provision is made for adequate maintenance and sanitation of school grounds, plant, and classrooms.

(Fair = 1; good = 2; excellent = 3)

SCORE _____

8. A modern health instruction program is maintained under expert leadership in physical education, in home economics, or in general science, or is correlated through several departments.

(Separate course in one department = 1; fairly well correlated = 2; completely correlated, with co-ordinating director = 3)

SCORE _____

9. A comprehensive safety education program is maintained, emphasizing safety habits and practices, safety codes, and safety standards, in all departments.

(Fair program = 1; good = 2; excellent = 3)

SCORE _____

10. Definite efforts are made to encourage faculty recreational activity and to improve the health status of teachers.

(Fair results = 1; good = 2; excellent = 3)

SCORE _____

II. OUTDOOR AREAS

Possible Score = 30. Actual Score = _____

1. Total available unobstructed field and court playing space for school and community use varies from four to fifteen or more acres, according to size of school.

(Minimum of four acres--an area equal to one small soccer field, seven tennis courts, and one hard baseball field--and one additional acre for each added unit of five hundred students (boys and girls) = 1; minimum of six acres, and one additional acre for each additional unit of four hundred students = 2; minimum of eight acres, and one additional acre for each additional unit of three hundred students = 3)

SCORE _____

2. Sufficient playing fields are marked off and equipped (for multiple use in field hockey, field ball, soccer, softball, speedball, touch football, et cetera) to accommodate all outside peak load classes (both boys and girls).
(Fair facilities = 1; good facilities = 2; excellent facilities = 3)

SCORE _____

3. Court areas (for separate or multiple use in archery, badminton, handball, horseshoes, paddle tennis, tennis, et cetera) are marked off and equipped to accommodate both boys' and girls' classes in all court activities offered.
(Fair facilities = 1; good facilities = 2; excellent facilities = 3)

SCORE _____

4. Field and court areas are surfaced with materials that are resilient, non-slippery, firm and as nearly dustless as possible, and have suitable slope for good drainage in rainy weather. At least 20% of area should be paved for multiple court game use, with blacktop (bitumals or asphaltic concrete).
(Hard packed clay or decomposed granite, plus 20% blacktop = 1; calcium chloride, plus 20% blacktop = 2; good turf, plus some dirt area, plus 20% blacktop = 3)

SCORE _____

5. Jumping pits and field apparatus are protected by sawdust, sand, or dirt kept soft.
(Dirt kept soft = 1; sand = 2; sawdust = 3)

SCORE _____

6. Field, court, and diamond areas are kept clean and well marked; are without hazardous obstructions; and are laid out to provide maximum relief from sun glare.
(Fair condition = 1; good = 2; excellent = 3)

SCORE _____

7. Maintenance work on fields and courts is done by workmen other than instructors or students.
(Partly by others = 1; mostly = 2; entirely = 3)

SCORE _____

8. All play areas are fenced off from streets, with subdivision fences where necessary for safety and control.
(Partly fenced = 1; all fenced from street = 2; all fenced, with subdivisions = 3)

SCORE _____

9. Play areas are bordered by attractive trees, shrubbery, and vines; and in warm climates are equipped with shaded tables and seats.
(Fair condition = 1; good = 2; excellent = 3)

SCORE _____

10. Play areas are lighted for night use for community recreation programs.
(Fair lighting = 1; good = 2; excellent = 3)

SCORE _____

III. INDOOR AREAS

Possible Score = 30. Actual Score = _____

1. One or more gymnasium areas sufficient for boys' and girls' inside class activities (according to size of school)(for common use for apparatus, boxing, corrective fencing, gymnastics, rhythms, tumbling, and wrestling) are available and are appropriately equipped, and properly heated, lighted and ventilated.
(Standards approximately met = 1-2; fully met = 3)

SCORE _____

2. Gymnasium floors are of hardwood; lines are properly painted; walls are smooth and clear, painting is a light neutral color; radiators and drinking fountains are recessed; ceiling height is between eighteen and twenty-two feet.
(Standards approximately met = 2; entirely met = 3)

SCORE _____

3. Additional classrooms, appropriately equipped for theory instruction and health education classes, are provided in the building or conveniently adjacent.

(One room = 2; two or more rooms = 3)

SCORE _____

4. Special rooms for coeducational social activities are appropriately furnished.
(Classrooms or gymnasiums partly furnished = 1; well-furnished separate rooms = 3)

SCORE _____

5. A rest room for boys (equipped with cots, pads, blankets, and sheets), adequate to handle peak load use of building, is provided for use in injury or illness, or for rest periods.

(One cot for 100 boys in peak load = 1; 1 cot for 75 boys = 2; one cot for 50 boys = 3)

SCORE _____

6. A rest room for girls, with equipped cots adequate to handle peak load use of building, is provided for use in injury or illness, or for rest periods.

(One cot in peak load for 50 girls = 1; one cot for 30 girls = 2; one cot for 20 girls = 3)

SCORE _____

7. Rest rooms each for men and women faculty members are provided with appropriate dressing rooms and showers.

(Satisfactory facilities for women only = 2; for both men and women = 3)

SCORE _____

8. An equipment office is provided in both boys' and girls' locker rooms, properly arranged for issuing towels, suits, and supplies for both indoor and outdoor use.

(Satisfactory office for one only (boys or girls) = 1-2; satisfactory for both = 3)

SCORE _____

9. Properly equipped instructors' offices (separate for men and women), with suitable facilities for medical examinations, are available in good locations for adequate supervision of student activities.

(Well-equipped offices, but poorly located for supervision = 1; well-equipped, with good supervision of one major activity area = 2; well-equipped, with supervision of two or more major activity areas = 3)

SCORE _____

10. The combined inside facilities (including classrooms, gymnasiums, and special rooms) are adequate to handle all classes (boys and girls) inside, during bad weather.

(Approximately = 1-2; entirely = 3)

SCORE _____

IV. LOCKER AND SHOWER AREAS

Possible score = 30. Actual score = _____

1. Locker rooms (sunny and well ventilated) provide free floor space, exclusive of lockers, adequate to care for peak load of use. (Peak load equals largest number of students dressing in any one class period).

(Eight sq. ft. per pupil = 1; ten sq. ft. = 2; twelve sq. ft. = 3)

SCORE _____

2. Individual locker facilities are provided for all students.

(Box lockers or narrow vertical lockers = 1; combination box and dressing lockers = 2; half length, standard size lockers, or self-service basket system, combined with full-length dressing lockers for peak load = 3)

SCORE _____

3. Adequate lock protection is provided for lockers or baskets.

(Key locks = 1; permanent combination locks = 2; high-grade combination padlocks = 3)

SCORE _____

4. Continuous supervision by either equipment clerks or instructor is provided for locker areas while in use by students.
(Fair supervision = 1; good = 2; excellent = 3)

SCORE _____

5. Boys' dressing areas are of the open aisle type, with fixed benches in the aisles; girls' areas offer choice of closed booth or open aisle.
(Standards approximately met = 2; fully met = 3)

SCORE _____

6. Boys' shower rooms are of the "gang" type, with adequate drying room capacity; girls' areas offer choice of "gang" type or closed booth type.
(Standards approximately met = 2; fully met = 3)

SCORE _____

7. Shower rooms provide eight to twelve square feet of floor area per shower head, and sufficient showers to take care of peak load adequately.
(Five students per shower at peak load = 1; four per shower = 2; three per shower = 3)

SCORE _____

8. Hot water is thermostatically controlled to prevent scalding; shower heads are at neck height; liquid soap dispensers are provided in all shower areas.
(Standards approximately met = 2; fully met = 3)

SCORE _____

9. Adequate toilet facilities are available in separate areas immediately adjoining locker and shower rooms (accessible directly to playground; and contain adequate bowls, urinals, washbasins (conforming to established standards for the peak load); hot and cold water, liquid soap dispensers, drinking fountains, mirrors, wastebaskets, and paper towels or drying machines.
(Fair facilities = 1; good = 2; excellent = 3)

SCORE _____

10. Floors are washed daily with antiseptic solution; and antiseptic footbaths are provided for optional use, to aid in control of foot ringworm.
(Standards approximately met = 2; fully met = 3)

SCORE _____

V. SWIMMING POOL

Possible score = 30. Actual score = _____

1. Adequate swimming facilities are available for all students (both boys and girls).
(Off-campus facilities, closely adjoining = 1; small pool (less than 1250 sq. ft.) on school grounds = 2; large pool (over 1250 sq. ft.) on school grounds = 3)

SCORE _____

2. Pool construction provides proper acoustics; suitable scum gutters; nonslip decks; white tile or other light finish on sides and bottom; underwater lighting if pool is used at night; bottom of pool clearly visible at all times of operation.
(Standards approximately met = 1-2; fully met = 3)

SCORE _____

3. Pool is equipped with adequate machinery for heating, filtering, and sterilizing water, and for maintaining it in conformity with established health standards.
(Fair equipment = 1; good = 2; excellent = 3)

SCORE _____

4. Standard tests are made daily for air temperature, water temperature, water acidity, and residual chlorine content and, at least weekly, for bacterial content of water.
(Score = 3)

SCORE _____

5. Pool is equipped with standard safety devices and is protected by control doors which are kept locked at all times except when life guard or instructor is on duty.
(Score = 3)

SCORE _____

6. Swimmers are required to enter pool through a water foot bath, opening from the shower rooms; to visit toilet and take supervised soap shower baths before entering; and are not permitted in pool with colds or skin infections.
(Standards approximately met = 2; fully met = 3)

SCORE _____

7. Spectators in street shoes are not permitted on pool decks but are provided with appropriate gallery space.
(Score = 3)

SCORE _____

8. Use of pool facilities is distributed equally between men and women students.
(Approximately met = 3)

SCORE _____

9. All life guards and swimming instructors are required to hold the Senior Red Cross Life Saving Certificate or the Examiner's Certificate.
(Score = 3)

SCORE _____

10. Pool is available for community recreation use when not required for school purposes, particularly during summer months.
(Score = 3)

SCORE _____

NOTE: Schools without campus pools or adjacent facilities, if they conduct and stress swimming campaigns, may score up to maximum of 15 points for swimming pool, as follows: (annual "learn to swim" campaign, in

cooperation with Red Cross or other agency, reaching successfully 25% of student body = 5; campaign reaching 50% of student body = 10; campaign reaching 75% of student body = 15)

SCORE _____

VI. SUPPLIES AND EQUIPMENT

Possible Score = 30. Actual score = _____

1. Adequate supply of balls (in good condition) and similar equipment is available for class instruction in all team activities offered.
(One ball, or other item, for every ten members of average size class = 1; one for every eight members = 2; one for every six members = 3)

SCORE _____

2. Class sets of supplies for individual or dual sports are provided for class instruction in all activities offered (archery, badminton, handball, golf, horseshoes, table tennis, squash, tennis, et cetera).
(Individual supplies for each member of average size class = 2; for each member of peak load class = 3)

SCORE _____

3. All class supplies are kept repaired and in good condition (balls clean and well inflated, bats taped) both for efficiency and safety.
(Fair condition = 1; good = 2; excellent = 3)

SCORE _____

4. All students wear appropriate uniforms in activity classes.
(Uniform furnished by themselves = 1; provided by school, and fee charged = 2; provided by school, without charge = 3)

SCORE _____

5. Towels and swimming suits or trunks (where needed) are made available.
(Furnished by student = 1; by school with fee = 2; by school without charge = 3)

SCORE _____

6. Swimming suits and towels are laundered daily, and uniforms weekly.
(By student at home = 1; by school, with fee = 2; by school, without charge = 3)

SCORE _____

7. Adequate first aid supplies are available at all times in a first aid room, or in instructors' offices and equipment offices.
(Fair supplies = 1; good = 2; excellent = 3)

SCORE _____

8. Adequate equipment clerks (other than instructors) are provided at all activity hours to handle equipment and supplies (including towel dispensing).
(Volunteer student help (not for phys. ed. credit) = 1; paid student help = 2; full-time equipment clerk = 3)

SCORE _____

9. Piano and pianist, or phonograph, and other necessary musical accompaniment equipment are furnished for dancing classes.
(Fair equipment and service = 1; good = 2; excellent = 3)

SCORE _____

10. Activity supplies are available for community recreation use outside of school hours.
(Score = 3)

SCORE _____

VII. MEDICAL EXAMINATIONS AND HEALTH SERVICE

Possible score = 30. Actual score = _____

1. Medical examining, advisory, and emergency service is provided by school physicians with co-operative

arrangements for handling handicapped and problem cases in school or public clinics or by private medical practitioners.

(Adequate volunteer service by community physicians = 2; part-time paid school physician, or (in schools of 2,000 or more) one or more full-time physicians = 3)

SCORE _____

2. Trained school nurse service is provided for both school and home visitation purposes, by either part-time or full-time nurses according to size of school.
(Fair service = 1; good service = 2; excellent service = 3)

SCORE _____

3. A comprehensive examination by the school physician (assisted by physical education instructors) is required of every student at least once in each school level (example, junior high); and includes at least a careful check for orthopedic and postural defects, vision, hearing, nose, mouth, throat, teeth, heart, lungs, nutrition, skin, nervous condition, and possible hernia.
(Once in school level = 2; two or more times in school level = 3)

SCORE _____

4. No student is permitted to participate in strenuous class or athletic activity without a satisfactory medical examination.
(Score = 3)

SCORE _____

5. A permanent, continuous, progressive health record is maintained and passed on for each child and is used as a basis for advice and follow-up health service.
(Fair = 1; good = 2; excellent = 3)

SCORE _____

6. On basis of medical examination children are classified into three divisions, or equivalent: A,

average normal for unlimited participation; B, subnormal, with temporary or permanent limitation to restricted activity; C, offered individual or corrective treatment, supplementing normal program.

(Fair = 1; good = 2; excellent = 3)

SCORE _____

7. Assignment to rest, restricted, or individual activity, or excuse from required normal physical education activity (for other reason than temporary illness) is approved by the school physician, in consultation with the physical education department head.
(Score = 3)

SCORE _____

8. Students returning after influenza or other serious illness are inspected by the school physician or nurse and assigned to a modified program until their condition justifies resumption of normal activity; students sent home in case of illness or accident are accompanied by an adult.
(Standards approximately met = 1-2; full met = 3)

SCORE _____

9. A health examination is made by the school physician of all teacher applicants; and a careful inspection of all teachers returning to duty after illness of two weeks or more.
(Standards approximately met = 1-2; fully met = 3)

SCORE _____

10. Nonmedical teachers or school officers are never permitted to diagnose or treat health disorders; but a close co-operation is maintained between physical education teachers and the school physician.
(Score = 3)

SCORE _____

VIII. MODIFIED-INDIVIDUAL (CORRECTIVE ACTIVITIES)

Possible score = 30. Actual score = _____

1. Adequate modified and individual activity classes, with limited enrollment, are provided for students incapacitated for normal participation or needing special postural or orthopedic correction (classes B and C).

(Maximum of 30 students per instructor = 1; 25 students per instructor = 2; 20 students per instructor = 3)

SCORE _____

2. All modified and individual activity cases are properly classified and grouped within classes for effective instruction and guidance, according to their condition.

(Fair = 1; good = 2; excellent = 3)

SCORE _____

3. Extreme types of restricted cases are assigned to periodic rest periods, in addition to the modified activity, with appropriate reductions in academic program, where needed.

(Fair = 1; good = 2; excellent = 3)

SCORE _____

4. Adequate facilities are provided for suitable games for modified cases (table tennis, deck tennis, horseshoes, croquet, archery, shuffleboard, et cetera).

(Fair facilities = 1; good = 2; excellent = 3)

SCORE _____

5. Adequate facilities for handling individual activity cases are available either within the school or in a central corrective center, accessible to several schools (or the equivalent).

(Fair facilities = 1; good = 2; excellent = 3)

SCORE _____

6. All teachers assigned to handle individual activity (corrective) classes have had technical training in corrective and therapeutic work.
(Fair training = 1; good = 2; excellent = 3)

SCORE _____

7. In individual activity instruction, emphasis is placed upon practicing the directed exercises at home, frequently, with the co-operation of parents; and upon maintaining good postural alignments at all times.
(Fair = 1; good = 2; excellent = 3)

SCORE _____

8. Wherever possible, interesting activities of the sports, gymnastic, aquatic, or rhythmical types are used in place of corrective drills, to secure postural and corrective results.
(Fair results = 1; good = 2; excellent = 3)

SCORE _____

9. Normal students, who are temporarily incapacitated or strenuous activity because of accident, operation, or serious illness, are assigned to modified activity, under supervision (either in their regular period or in a special class), until school physician or nurse approves their return to regular class work.
(Score = 3)

IX. ORGANIZATION AND ADMINISTRATION OF CLASS PROGRAMS

Possible score = 30. Actual score = _____

1. All persons coaching teams, or handling physical education classes, or community recreation activities under school supervision are properly certified to teach in the state and have had extensive training and/or experience in physical education.
(All certified and experienced = 2; all with a major or minor = 3)

SCORE _____

2. Teachers are active in professional organizations such as the American Association for Health, Physical Education and Recreation, attend professional meetings, subscribe to professional

magazines, and maintain a good supply of late professional books in library.
(Fairly active = 1; active = 2; very active = 3)

SCORE _____

3. Instructors stress co-ordinated teaching; combining with performance fundamentals, the necessary rules, team strategy, social and ethical standards, health and safety factors; and attempt to adapt program to outside recreational needs and interests.
(Fair = 1; good = 2; excellent = 3)

SCORE _____

4. Frequent opportunity is provided for coeducational activity, either in class instruction or in recreational participation.
(Mild encouragement = 1; coeducational intramural sports = 2; coeducational elective class instruction = 3)

SCORE _____

5. Instructional classes for normal students are limited in size for effective instruction purposes.
(Maximum of 45 students per instructor = 1; 40 students per instructor = 2; 35 students per instructor = 3)

SCORE _____

6. Teacher class assignments (including after school responsibilities such as team coaching and playground direction, unless these involve additional salary) are sufficiently limited for adequate instruction.
(Maximum load six hours per day = 2; five hours per day = 3)

SCORE _____

7. Testing for final grade in activity classes is distributed over (1) performance skills, (2) knowledge of rules and strategy, (3) social attitudes (citizenship), (4) posture and body mechanics (or equivalent).
(Fair tests = 1; good = 2; excellent = 3)

SCORE _____

8. Students are not permitted to substitute clerical work, janitor work, towel dispensing, or piano playing, et cetera, in place of physical education class activity.
(Score = 3)

SCORE _____

9. Healthful living (health education instruction) is offered in concentrated instruction periods, in appropriate departments, in addition to coordinated health counseling in other departments. Classes meet in quiet, comfortable classrooms, not in locker rooms or on bleachers.
(Equivalent of at least two hours per week for one semester in each level = 1; equivalent of five hours per week for one semester in each level = 2; equivalent of five hours per week for two semesters in each level = 3)(If substituted for an activity class = 0)

SCORE _____

10. Assignment to activity classes is based on age, physical condition, skill development, need, and interest.
(Assigned at random according to free period = 0; by grades = 1; by medical diagnosis and grade = 2; by medical diagnosis, degree of development and skill, need and interest = 3)

SCORE _____

X. ADMINISTRATION OF INTRAMURAL AND INTERSCHOOL ATHLETICS*

Possible score = 30. Actual score = _____

1. Both intramural and interschool sports programs (for boys and girls) are budgeted and financed from school funds; and ticket selling for contests is discouraged or prohibited.
(Partly financed, and sale discouraged = 1; fully financed, and sale to students prohibited = 2; full financed, and public admitted free to contests = 3)

SCORE _____

*Note: Schools that do not sponsor interschool athletics should double score on items 1-5, leave out items 6-10.

2. Students are classified for competitive purposes on basis of three-point classification plan (or equivalent) in addition to medical examination, in order to reduce hazards and to minimize inequalities between opponents.
(Fair classification = 1; good = 2; excellent = 3)

SCORE _____

3. Instruction, coaching, and officiating of athletics is handled by women instructors for girls, and by men instructors for boys, with close co-operation between the two in coeducational activities and joint sports days; use of athletic facilities is equitably divided between boys and girls.
(Standards approximately met = 2; fully met = 3)

SCORE _____

4. Well-organized sports (play) days are staged periodically under trained and experienced leadership with major emphasis on carry-over types of sports.
(Sports days for girls and boys separately = 2; both separate and joint sports days for boys and girls = 3)

SCORE _____

5. Noon-hour activities (where time is available beyond adequate period for unhurried eating) are carefully supervised and limited to modified sports of physiologically defensible types.
(Fair organization and supervision = 1; good = 2; excellent = 3)
(If no time available, score = 1)

SCORE _____

6. Interschool competition for girls (when conducted) is under strict supervision and control of well-trained women instructors; is conducted according to girls' rules; and is limited chiefly to interschool sports (play) days.
(Standards approximately met = 2; fully met = 3)

SCORE _____

7. Interschool competition for boys is restricted largely to local leagues; without overnight travel; no state (or larger) championships; no post season games; not over seven games in football season; not over sixteen games in basketball season; other sports with appropriate limits; and with from two to three weeks of preliminary practice preceding first contest.
(Standards approximately met = 2; fully met = 3)

SCORE _____

8. Students are eligible for interschool competition only between fourteenth and nineteenth birthdays; for not more than four years in any one sport; and for not more than one major sport in a given semester or term.
(Standards approximately met = 2; fully met = 3)

SCORE _____

9. Interscholastic athletic policies are determined by school administrators and physical education instructors or by regularly constituted school athletic leagues; and game officials are selected from experienced school people as far as possible.
(Mostly = 2; entirely = 3)

SCORE _____

10. School officials provide necessary traffic and safety protection to and from and during interschool contests; and maintain school physician in attendance at all major athletic contests.
(Standards approximately met = 2; fully met = 3)

SCORE _____

Elder, Haskell P. "Appraising the Motor Fitness of Junior High School Boys." Unpublished Doctoral Dissertation, Springfield College, Springfield, Massachusetts, 1956. (University of Oregon Micro Card Publications).

INSTRUCTIONS FOR ADMINISTERING
JUNIOR AND SENIOR HIGH SCHOOL MOTOR FITNESS TESTS

INTRODUCTION:

The following tests have been selected as a result of thorough and carefully executed research. Their individual and collective reliability and validity are established. Care should be given to insure their administration according to the rules set forth herein. The results will facilitate valid appraisal of the motor fitness of senior high school boys.

TEST PROCEDURES:

I. FLOOR PUSH-UPS

A. Equipment needed:

1. A clean, level floor or surfaced area space.
2. A 1" x 3" x 5" block of wood or a stack of used file cards of the same size held together with tape.

B. Description:

1. Subject, in complete physical education uniform, assumes a leaning rest position with hands shoulder width apart, fingers forward, weight resting on hands and toes and body straight. The back of the body from ankles to head must remain straight throughout the exercise.
2. From above position, subject bends his arms, keeping body straight and elbows close to sides, until his chest only (no other part of body except hands and toes) touches the 1" x 3" x 5" object placed on the floor underneath the center of his chest. Immediately upon contacting the object the subject extends his arms, still keeping body straight, and returns to the starting position.

3. The exercise is repeated as many times as possible.

C. Rules:

1. The subject's performance shall be recorded as the number of perfectly executed push-ups he is able to make to full extension of the arms.
2. No resting or undue shifting of hands and feet will be permitted.
3. No score is given if:
 - a. Arms are bent at top of movement.
 - b. Any part of body other than hands and toes touches floor.
 - c. Shoulders are pushed up first while hips are stationary near floor.
 - d. Hips are raised upward and backwards before shoulders are pushed up.
4. Examiner shall audibly count the subject's correct push-ups.
5. Modified push-ups for girls only
 - a. Prone position with weight on front part of knee. Hand directly under shoulders. Knees are flexed.
 - b. Push up with arms. Straight line from knees to top of head.
 - c. Record actual number completed consecutively.

II. STANDING BROAD JUMP

A. Equipment needed:

1. A mat properly marked to measure, to the nearest inch, the distance jumped beyond a given "take-off" line.

B. Description:

1. Subject, in complete physical education uniform, stands on both feet toeing the take-off line. He may swing arms, bend knees and rock forward and backward alternately in rhythmical

preparation for jump. He shall not touch the take-off line before or in process of jumping. He shall "take off" from both feet, land on both feet, and continue forward.

C. Rules:

1. Subject's best effort shall be recorded in inches to nearest inch.
2. Each subject shall be given successive trials until three legal jumps are made.
3. "Crow hopping," shuffling or preliminary hopping nullify the jump but do not count as a trial.
4. The distance jumped is the nearest point to the take-off line touched by any part of the contestant's body.

III. DODGE RUN

A. Equipment needed:

1. Ten folding chairs
2. Tenth second stop watch
3. Gym floor or equivalent area

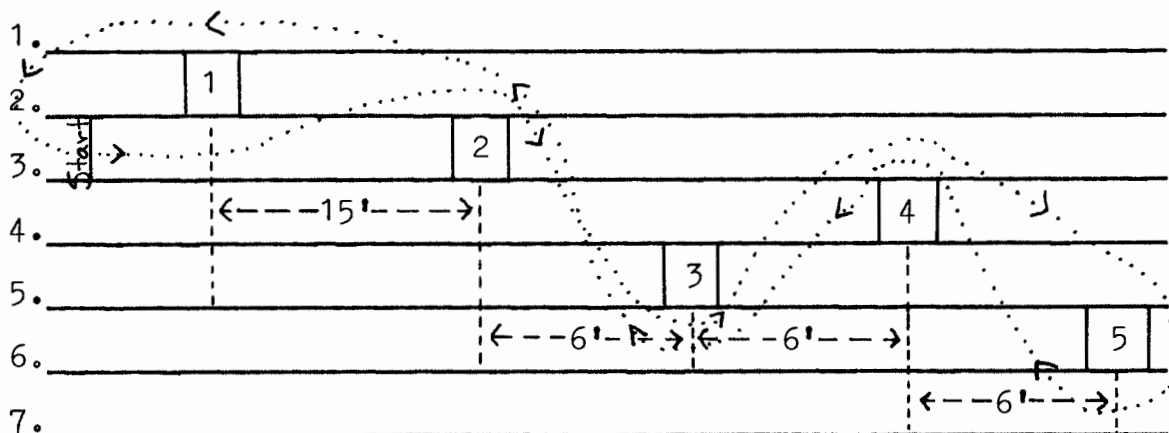
B. Description:


1. Subject, in regulation physical education uniform, crouches behind the starting line (see diagram, next page).
2. On "GO" signal, contestant begins two complete trips along path indicated by dotted lines and arrows.

C. Rules:



1. The subject's score is the best of two trials recorded in seconds and tenths.
2. At least five minutes rest shall be allowed between trials.
3. Subject shall be permitted to repeat any trial in which a foul is committed.

4. Fouls: (1) Touching a chair; (2) starting before "GO" signal; (3) following wrong route; (4) falling.
5. Start watch with "GO" signal. Stop watch when subject crosses finish line at the completion of second trip.



 - two folding type chairs placed back to back.

Nos. 1 to 7 - three foot lanes

Measured from center to center of chair seats, the distance between  1 and  2 is 15 feet and all others, 6 feet.

IV. SQUAT THRUSTS:

A. Equipment needed:

1. A clean, level floor or surfaced area space.
2. Stop watch.

B. Description:

1. Subject stands "at attention."
2. On "GO" signal the following four part exercise is performed as rapidly as possible for 20 seconds: (1) Bend knees and hips and place hands on the floor within eight inches of the feet. (Squat-rest position) Fingers should point forward: arms may be between, outside, or in front of the bent knees. (2) Extend legs

backward until body is straight from shoulders to heels (front-leaning rest position). (3) Return to squat-rest position. (4) Stand up straight. In the upright position, the subject may lean forward, but his chest must be in front of an imaginary line drawn from chin to toes.

3. Subjects will make better scores on this test if they do not take a full knee bend but rather bend knees only to a right angle, and if they keep the shoulders in front of the hands when the legs are thrust back.

C. Rules:

1. Subject's score consists of four points for each complete exercise and one point for each quarter thereof completed in twenty (20) seconds. Best of two trials shall be recorded.
2. At least five minutes rest shall be allowed between trials.
3. One point shall be deducted for each foul committed.
4. Fouls: (1) Hands are not placed within eight inches of the feet; (2) Feet start backward before the hands are placed on the floor; (3) Hips are kept above the shoulder line when feet are back; (4) Subject does not straighten up on the fourth count.

V. TRUNK FLEXION

A. Equipment needed:

1. Plinth or long table
2. Sliding, wooden breadth caliper

B. Description:

1. Subject sits lengthwise on table with hands clasped at back of neck; legs are straight and spread (approximately 18 inches at ankles) to allow room for head to pass between knees during maximum forward trunk flexion.

2. Keeping knees straight, subject slowly bends forward and downward.
3. Examiner measures minimum distance achieved between subject's forehead and table top.

C. Rules:

1. Subject's score is the best of three trials recorded in inches and tenths.
2. Subject shall bend forward, rounding the back slowly and steadily, without any jerking motions.
3. Knees must be kept straight throughout the forward trunk flexion.
4. Hands must remain clasped at back of neck.

Acknowledgment is extended to Dr. Haskell P. Elder for the development of the above described test battery and the procedures for administering the tests.

Burdon R. Daugherty
Instructor of Physical
Education
Kennewick High School

Carol Finney
Instructor of Physical
Education
Eisenhower High School

McCloy, Charles, and Norma D. Young. Tests and Measurements in Health and Physical Education. Third edition. New York: Appleton-Century-Crofts, Inc., 1954. 497 pp.

McCLOY GMA TEST

1. Standing Broad Jump----see instructions for Elder test. This score may also be recorded for the Elder test at this time.
2. 50 yard Dash --
 - a. Preferably use the regular track surface.
 - b. Time in seconds and to nearest tenth.
 - c. Two trials permitted with best time being scored.
3. Basketball throw --
 - a. Use regulation basketball.
 - b. Three trials.
 - c. Overhead or sidearm motion only.
 - d. Measure to nearest foot.
4. Modified Pull-ups
 - a. Use the horizontal bar.
 - b. Adjust bar so that it comes to the lower $\frac{1}{3}$ of the sternum.
 - c. Pupil extends her legs under the bar and extends arms fully. The arms should form a 90 degree angle with the body line. The body line should form an angle of 45 degrees with the floor.
 - d. Scorer should brace the heels and should make sure the girl does not sag or arch her lower back.
 - e. Score the completed number of pull-ups done consecutively.
5. Chins for the boys
 - a. Use horizontal bar or other stationary bar.
 - b. One chin is accomplished by bending his elbows and pulling himself up until his chin is above the bar. Then he lowers himself to a hang position.
 - c. Score is number of complete chins performed correctly and consecutively. (note keep legs still)

Stradtman, Alan D. "A Physical Fitness Knowledge Test for Secondary School Boys and Girls." Unpublished Master's thesis, University of Illinois, Urbana, Illinois, 1947.

A PHYSICAL FITNESS KNOWLEDGE TEST
FOR SECONDARY SCHOOL BOYS AND GIRLS

Name _____ Check which: _____ Date _____
School _____ Male _____
Age _____ Grade _____ Female _____

Directions: Read the following statements carefully. Insert in the blank space to the left of the question the number in front of the word or phrase most accurately completing or best related to the statement. Work as rapidly as possible. If you do not know the answer to a question go right on to the next one.

Example:

- _____ A. The organ of the body most concerned with supplying blood to the entire body is:
1. The heart
 2. The liver
 3. The stomach
 4. The spleen
 5. The pancreas

The number 1 is placed in the blank space since "the heart" is the correct answer.

STOP: DO NOT BEGIN UNTIL TOLD TO DO SO BY THE INSTRUCTOR.

- _____ 1. Physical fitness, in addition to being free from sickness and the ability to pass a medical examination, means:
1. condition to run a mile under four minutes
 2. ability to handle the body well and capacity to work hard over a long period of time without diminished efficiency.
 3. having large bulky muscles
 4. having long arms and long legs
 5. being far-sighted

- _____2. A person with good physical fitness will have:
 - 1. big feet
 - 2. better than average vision
 - 3. endurance and a high energy level in a wide range of activities in life
 - 4. immunity to disease
 - 5. a fast resting heart beat

- _____3. A well conditioned, organically sound body will be useful to:
 - 1. permit only 4 to 5 hours sleep a night without harmful effects
 - 2. permit the heavy use of tobacco and alcoholic beverages without harmful effects
 - 3. enable the individual to learn his school work without studying
 - 4. increase the person's self-confidence and self esteem
 - 5. enable him to be better in all sports than anyone else

- _____4. The proper amount and regularity of exercise is an aid to:
 - 1. eliminating all cooked food from the diet
 - 2. changing the length and size of the large and small intestines
 - 3. cheerful disposition, clearness of thinking and enjoyment of eating
 - 4. increasing the intelligence of any person
 - 5. making the individual immune from small-pox

- _____5. At the end of any activity involving strenuous running, a person should:
 - 1. stop immediately and sit down
 - 2. lie down and cover up with a blanket
 - 3. allow someone to massage the muscles
 - 4. jog slowly and do flexing exercises for about 10 minutes
 - 5. stand still and take deep breaths

- _____6. Increased production of red blood cells in the normal person is aided most quickly by:
 - 1. drinking a quart of tomato juice daily
 - 2. decreasing the amount of fatty foods in the diet
 - 3. drinking a large amount of orange juice daily
 - 4. strenuous exercise
 - 5. playing active games of table tennis daily

- ____7. If a poorly conditioned individual exercises to the point of extreme fatigue it will:
 - 1. cause fatty deposits around the heart
 - 2. produce soreness which will last several days
 - 3. help the elimination of waste products
 - 4. assist the individual to develop better posture
 - 5. permanently hurt his vision

- ____8. In athletics a person becomes "winded" when:
 - 1. the lungs cannot take in air
 - 2. the stomach is empty
 - 3. the body cannot eliminate waste products fast enough
 - 4. there is carbon dioxide in the air
 - 5. he doesn't get help from the rest of the team

- ____9. A training diet insuring high energy producing foods for athletic fitness should include:
 - 1. whole milk, butter, cheese, egg yolk
 - 2. cabbage, turnips, celery, cauliflower
 - 3. white bread, pie, pork chops, vegetables
 - 4. whole grain cereals, fruits, sugar, potatoes
 - 5. roast beef, salads, boiled eggs, cake

- ____10. If a normal individual experiences stomach sickness and headache after strenuous exercise at the start of a season of training it usually indicates:
 - 1. something very wrong with the heart
 - 2. a temporary lack of condition
 - 3. that the individual should stop all exercise
 - 4. food poisoning
 - 5. that the person should go to bed for at least a month and rest

- ____11. Alkaline producing foods are an aid in developing better endurance. In order to secure these we should eat:
 - 1. beef liver, tapioca, egg whites
 - 2. sugared tomatoes, leg of veal, corn flakes
 - 3. cracked whole wheat, lean beef, white sugar
 - 4. cooked oatmeal, shrimps, sweetened lemon juice
 - 5. oranges, grapefruit, and lemons

- _____ 12. Even though our physical limits are, to a great extent, set by our inherited constitutions many persons can be improved in physical fitness by:
1. attention to proper nutrition
 2. drinking large amounts of water
 3. taking courses in school in sanitation and disease prevention
 4. eating a diet composed mostly of carbohydrates
 5. allowing nature to take its course
- _____ 13. In order to build muscular tissue a person should:
1. rest frequently
 2. eat a diet high in protein
 3. choose food with high fat content
 4. exercise only in sunshine
 5. refuse to eat meat unless it has been roasted
- _____ 14. The enlargement of a muscle through exercise is due to:
1. growth of bone
 2. growth of new muscle fibers
 3. an increase in fluid between the muscle fibers
 4. deposits of fatty tissues used for energy
 5. torn muscle tissues and accumulation of waste products
- _____ 15. The aches and pains in muscles usually suffered by an individual following strenuous exercise for the first time is caused by:
1. lack of water in the blood
 2. lack of sleep the night before
 3. lack of sufficient heart rate
 4. improper method of performing activity
 5. torn muscle tissues and accumulation of waste products
- _____ 16. A sign that a person is unfit or is becoming so, may be:
1. a desire to attend movies
 2. a liking for ice cream
 3. a constant feeling of being tired
 4. wanting to go to bed before midnight
 5. being able to do more than 50 push-ups

- _____17. The warm up preceding a game, contest or exercise period is of value because:
1. it gives a person time to think about the game strategy
 2. it provides an opportunity to see the opponents' weakness
 3. it provides a chance to try out new ideas or movements
 4. it gives the person an opportunity to become adjust to his new clothes
 5. it puts the reserve blood supply into circulation
- _____18. The amount of improvement in muscular strength possible for normal individual is largely determined by:
1. strictly following a diet of green and yellow vegetables
 2. the inherited amount of intelligence
 3. the quantity of meat eaten
 4. having a set time each day to read
 5. the regularity and strenuousness of the exercises
- _____19. Many persons believe that exercise is the best way of reducing fat. This statement:
1. is true
 2. is absolutely false--no fat is ever burned in the body exercise
 3. needs to be corrected to include a program of a supervised reducing diet
 4. should be corrected to state that vinegar should be included in the diet
 5. indicates that strenuous exercise should always be engaged in by fat people
- _____20. The process of eliminating waste products from the body is aided best by:
1. exercising vigorously once a month
 2. taking a laxative once a week
 3. the regular use of an enema once a week
 4. eating food with protein content
 5. drinking plenty of water, eating roughage and exercising regularly

- _____21. Before engaging in any activity involving physical exertion it is best to:
1. remain quiet in order to calm the nerves
 2. take preliminary warm up exercises
 3. drink as much water as possible as a lot will be lost during exercise
 4. drink several cups of coffee or tea as a stimulant
 5. take a shower
- _____22. Usually the total body weight of a person decreases after strenuous exercise. This is mostly due to:
1. the reduction of the volume of blood in the abdomen
 2. an increase in the amount of oxygen consumed
 3. a loss of water from the body tissues
 4. the loss of a lot of fat
 5. not eating a sufficient amount of food prior to the activity
- _____23. Moderate jogging, flexing, and contracting of muscles after severe exercise is valuable because:
1. it is an aid to driving blood back to the heart
 2. it helps in the further adoption of sugar
 3. it provides for increase in nervous tension
 4. it gives the person a chance to breathe without much exertion
 5. it makes the coach think the person is interested in the sport
- _____24. Prolonged inactivity generally affects organic and muscular efficiency in a way which tends to produce:
1. no marked effect if the person had been in good condition
 2. a slight increase in efficiency
 3. a weakness and a decrease in efficiency
 4. a reduction in the amount of fat deposited around organs and muscles
 5. an increase in the ability of the nervous system to react to a stimulus
- _____25. The ability to swim under water for any length of time depends on:
1. the ability to swim fast
 2. strong muscles
 3. the ability to contract all muscles at the same time
 4. heart and respiratory endurance
 5. possession of a body with good buoyancy

- _____26. Swimming regularly, at least 440 yards, three times a week will bring some improvements in:
 - 1. the circulatory system
 - 2. the size of the hands and feet
 - 3. the ability to take ice cold showers
 - 4. the speed with which the body can adjust its temperature
 - 5. the ability to smoke without harmful results

- _____27. Heart disease is likely to develop in a great number of people who have:
 - 1. participated in hard athletic work in youth
 - 2. poor vision
 - 3. exercised strenuously too soon after a serious infectious illness
 - 4. neglected to include beef heart and liver in their diet
 - 5. started endurance swimming between ages 8 to 10

- _____28. The best activities in which to participate to increase the heart and circulatory condition are:
 - 1. social dancing, bowling and badminton
 - 2. archery, rifle shooting and shuffleboard
 - 3. badminton, tennis and golf
 - 4. soccer, swimming, and cross country running
 - 5. volleyball, baseball and weight lifting

- _____29. Young people who participate in athletics and conditioning exercises are likely to develop:
 - 1. a dangerous disease called "athletes heart"
 - 2. a need for constant medical attention in later years
 - 3. fallen arches and leg trouble
 - 4. no ability to enjoy adult recreation and games
 - 5. mentally and physically improved bodily functioning

- _____30. A simple method of self-testing to determine one's circulatory-respiratory condition is:
 - 1. to see if one can run up a flight of stairs in 10 seconds
 - 2. determine how long one can hold his breath after running in place for two minutes
 - 3. to exercise for one minute, then measure the trunk flexion
 - 4. to see how many push ups one can do in two minutes
 - 5. to see if one can walk a straight line after turning around ten times in rapid succession

- _____31. The ability for sustained endurance effort in any physical activity depends largely upon:
1. the personality of an individual
 2. the height of an individual
 3. how much food has been eaten preceding the activity
 4. the ability of the blood to carry oxygen and the heart to circulate the blood fast enough
 5. the ability of the muscles to contract fast over a short period of time
- _____32. Organic condition in relation to physical fitness, means the relative state of health and efficiency of:
1. the legs and feet
 2. the arms and shoulders
 3. the organs of the body
 4. the muscles of the abdomen
 5. the spinal column
- _____33. Because the heartbeat of a trained person is usually slower than an untrained person it causes:
1. the untrained person to show little improvement
 2. longer resting periods for the heart
 3. less of a stimulus for good digestion
 4. less output of blood per minute
 5. better skill in varsity players
- _____34. The greatest general deficiency of modern youth in capacity for vigorous work of athletic effort is lack of:
1. flexibility
 2. balance
 3. power
 4. endurance
 5. agility
- _____35. The average person upon climbing a flight of stairs may be considered relatively fit if he:
1. experiences extreme shortness of breath for only 5 minutes
 2. if his legs feel tired but recover in 30 minutes
 3. experiences very little increase in breathing and heart rate
 4. only experiences a dizzy feeling for about one minute
 5. experiences a long continued rapid heart beat

- _____36. Endurance swimming continued over a period of two months will:
1. produce soft, weak muscles
 2. tend to make the muscles unfit for other sports even with a sufficient waiting period
 3. strengthen and improve the condition of muscles, blood, and heart
 4. cause the individual to become fat and lazy
 5. produce too much lengthening of muscles and loss of strength
- _____37. When heart damage occurs in exercise or athletics the most probable cause is:
1. not sufficient warm up prior to activity
 2. an already existing disease condition
 3. a training period of only one month previous to active sports participation
 4. strenuous exertion, particularly near the end of a game or race
 5. the inability of the heart to deliver sufficient blood as needed
- _____38. Participation by a normal individual in strenuous athletics during youth and adolescence will usually have the following effect on the heart:
1. injure the muscle fibers seriously
 2. hurt his performance in later years
 3. develop a stronger heart
 4. cause a bad condition called "athletes heart"
 5. tend to produce less efficient pumping of blood to the lungs
- _____39. One item which is necessary for good physical fitness is:
1. large bulky muscles
 2. good circulatory condition
 3. small feet
 4. large bones
 5. perfect vision
- _____40. The best way of developing muscular endurance is:
1. to do stretching exercises 3 minutes daily
 2. go "all out" the first day and gradually taper off
 3. at each exercise period go beyond the first onset of fatigue
 4. when the body feels comfortably tired stop and rest
 5. be sure the body is thoroughly warmed up before beginning exercise

- _____41. The ability to do twenty push ups requires:
1. a diet rich in sugar
 2. good arm and shoulder strength
 3. a knack of timing the exercise
 4. well developed abdominal muscles
 5. a body with little fat tissue
- _____42. In order to maintain good physical fitness a person should:
1. take light workouts once or twice a month
 2. take relatively vigorous workouts regularly during the week
 3. eat a diet rich in protein and carbohydrates
 4. sleep 10 to 11 hours a night
 5. refrain from drinking tea or coffee
- _____43. Rising on the toes from a one foot stand and holding stance for 10 seconds requires:
1. the ability to concentrate
 2. endurance
 3. balance
 4. excellent strength
 5. long legs
- _____44. The aspect of fitness which is indicated in being able to touch the head to the floor from a sitting position is:
1. agility
 2. good body organs
 3. size of bones
 4. flexibility
 5. strength
- _____45. Playing the piano, typewriting and sewing are considered:
1. as leisure time occupations
 2. motor skills which take considerable time to learn
 3. as evidence of a well developed personality
 4. abilities everyone possesses
 5. characteristic of the artistic temperament
- _____46. Excessive fat on an individual will:
1. provide the fastest burning fuel for body energy
 2. be of definite help in endurance running
 3. have no effect on competitive athletic performance
 4. slow down physical activity and hinder endurance
 5. indicate that the person is free from disease

- _____47. Many persons are handicapped in their attempts to become physically fit due to:
1. lack of knowledge of the rules of games
 2. an interest in physical activities
 3. inability to swim
 4. infections and strains in the body
 5. poor eyesight
- _____48. The fitness of the feet of a normal individual can best be helped by:
1. having someone massage the ankle joint
 2. standing on the heels with the toes elevated for 15 minutes daily
 3. full squat jumps, hopping and stride stand jumping
 4. sitting tailor fashion with feet under body as long as possible every day
 5. wearing arch supports in shoes
- _____49. In order to become physically fit quickly a person with no organic trouble should:
1. do light calisthenics
 2. practice volleyball and shuffleboard
 3. engage in badminton and tennis
 4. play three sets of tennis daily for three weeks
 5. practice "all out" exercise
- _____50. Insofar as the arch and relative condition of the feet are concerned the muscles of the lower leg:
1. are of no particular value
 2. only serve as connections between the thigh and foot
 3. do not need exercise as much as the toes for good arch development
 4. are important in maintaining good condition of the arch
 5. develop at a much slower rate than the muscles supporting the arch
- _____51. Heavy and massive bones are an aid to the body in withstanding many of the stresses placed upon it. Skeletal development is mostly due to:
1. the drinking of two quarts of milk a day
 2. stretching exercises
 3. heredity
 4. eating a diet high in carbohydrates and low in protein
 5. never having broken any bones

- _____52. To improve under-developed physique a person should:
1. run a mile twice a week for 2 months
 2. engage regularly in tennis, bowling or golf
 3. systematically practice fencing, badminton and handball
 4. participate in fairly strenuous work, weight lifting and conditioning exercises daily
 5. practice deep breathing and holding the breath as long as possible
- _____53. If a normal person's feet and legs become fatigued easily he probably should:
1. see a chiropractor
 2. take regular massage treatment
 3. eat more acid forming foods
 4. take leg conditioning exercises
 5. refrain from sitting in a crouched position
- _____54. Good posture may easily result in:
1. a stiff neck and sore back
 2. better digestion
 3. a decreased interest in athletics
 4. digestive upsets caused by the abdominal muscles being too tense
 5. poor circulation to abdominal organs
- _____55. There are many causes for poor posture but a person may improve his posture and body carriage by:
1. exercise designed to strengthen the legs
 2. an adequate diet of carbohydrates
 3. doing strenuous forward body bends and relaxing upon assuming the upright position
 4. having a chiropractor adjust the spine
 5. exercises designed to educate the muscles controlling the head, chest, spinal curves, pelvis and feet to proper postural position
- _____56. Weak, tired and easily fatigued feet may be due to:
1. poor condition of expiratory force muscles
 2. poor condition of lower leg muscles
 3. not sufficient number of tendons in lower leg
 4. doing exercises of a hopping and jumping nature
 5. wearing low heeled shoes with straight inner borders

- _____57. Many normal people complain of always having a "tired feeling." This could probably best be aided by:
1. taking additional doses of vitamin pills
 2. drinking two quarts or more of water daily
 3. taking regular exercises daily in the outdoors
 4. increasing the amount of vegetables in the diet
 5. taking regular massage treatments
- _____58. Many people confine their exercise and physical activity periods to week-ends. This type of exercise is:
1. more than enough to maintain good physical fitness
 2. insufficient to keep a good level of physical fitness
 3. a good way to keep the fat content of the body down
 4. one of the best methods of lengthening life
 5. very good for increasing the efficiency of the heart
- _____59. Formal calisthenics, gymnastics and conditioning exercises are of value in promoting physical fitness, but for mental hygiene and social value emphasis should be upon:
1. movies
 2. diet
 3. reading the current news
 4. politics
 5. sports and recreational games
- _____60. In order to stay organically fit a person must pay attention to:
1. the specific hours of the day he works out
 2. the rest of the class or persons with whom he exercises
 3. the weather conditions under which he exercises
 4. regular physical workouts, diet, sleep and proper elimination
 5. deep breathing exercises during the workout

- _____61. Before entering upon any program designed for strenuous conditioning or competition each participant should:
1. purchase the type of athletic equipment needed for the activity
 2. be examined by a physician for his own protection
 3. be sure he understands all the movements or exercises to be undertaken
 4. obtain an accident and health insurance policy
 5. inform the athletic director as to his interest in the program
- _____62. One of the basic requirements for sound mental health is:
1. plenty of movies and plays available in the community
 2. a job that pays \$10,000 a year
 3. an organically and efficiently operating body
 4. to not have to study hard to get your school work
 5. not having to work after school
- _____63. It is necessary to take part in conditioning exercises, sports and games to:
1. improve reading ability
 2. widen conversational vocabulary
 3. be able to pass insurance examinations
 4. develop physique, organic condition and motor ability
 5. improve possibilities to make varsity teams
- _____64. Good physical fitness is valuable in that it:
1. lasts a long time without exercise
 2. is associated with greater energy
 3. enables the body to store up vitamin C
 4. improves the ability to memorize
 5. can be used to show how strong you are
- _____65. One of the best reasons for getting eight to nine hours of sleep each night is that:
1. it provides a better blood supply to the brain
 2. it helps the body to repair damaged cells and tissues
 3. it develops better capacity of the heart and lungs
 4. each individual needs different amounts of sleep
 5. body wastes are eliminated better while sleeping

- _____66. From the physical standpoint there is no harm for the normal person in:
1. drinking alcoholic beverages
 2. exposing himself to another person with scarlet fever
 3. smoking ten cigarettes a day
 4. playing basketball at a young age
 5. only getting 5 hours of sleep a night
- _____67. Physical fitness can best be maintained by:
1. reading good books on the subject
 2. listening to illustrated talks on fitness
 3. regular systematic vigorous workouts
 4. seeing movies once a week of athletic contests
 5. watching an expert go through a series of good exercises
- _____68. From the health as well as the physical standpoint a person to be considered fit should:
1. know how to play card games
 2. be able to converse on foreign politics
 3. be able to engage in a variety of active recreational games
 4. be able to smoke cigarettes and drink alcoholic beverages
 5. possess technical knowledge of all athletic games
- _____69. One of the basic courses to be followed in developing all around fitness, mental, social and physical is:
1. a strenuous exercise period once a week
 2. to run a mile and walk a mile twice a month
 3. to engage in competitive sports until the age of 30
 4. a planned and graduated program over a period of years according to expert advice
 5. to exercise in the winter and rest during the summer

- ____70. A person has had too much exercise or is becoming "state" when he:
1. doesn't feel better but is tired, listless and experiences severe bodily discomfort after exercise
 2. becomes interested in playing basketball
 3. experiences aches and pains after the first time he has engaged in activity
 4. perspires a lot during a workout
 5. notices his heart rate is slower than when he started training
- ____71. Through systematic training and conditioning activities the body will:
1. have a decreased need for food
 2. have ability to do a greater amount of work
 3. have less need for vitamins
 4. be benefited in primary mental intelligence traits
 5. be able to function less efficiently in emergency situations
- ____72. Many complaints of eye trouble, headache, nervousness and fatigue could be best remedied by:
1. taking aspirin or other sedatives
 2. recreation, physical conditioning, adequate diet and sleep
 3. eating fish since it is a brain food and will help the nerves
 4. taking laxatives to clean out the bodily poisons
 5. seeing an optometrist
- ____73. The ultimate contribution of any activity to an individual is largely determined by:
1. the parents consent to engage in the activity
 2. having an instructor who is an expert in the activity
 3. the amount of effort put forth by the individual
 4. whether it is an indoor or outdoor activity
 5. the age at which he stops active participation

- ____74. A most important function of exercise is:
1. to remove fat
 2. to give the individual large bulky muscles
 3. to provide increased circulation, organic power and relief of nervous tension
 4. to provide some activity to do during your spare time
 5. to provide an opportunity for boys and girls with mutual interests to meet together
- ____75. The best activity to promote good physical fitness over the entire life span of a normal individual is:
1. football
 2. basketball
 3. golf
 4. swimming
 5. bowling
- ____76. In order to perform our daily tasks and support our body in the sitting or standing positions from morning to night without undue fatigue we must have:
1. twelve hours sleep a night
 2. a fatty deposit around the heart to act as a cushion
 3. three large meals of vegetables and meat daily
 4. sufficient muscular strength and economical posture
 5. an excess of sugar in the diet
- ____77. The health of a normal individual may be directly proportional to:
1. the amount of reading he does about health
 2. his physical condition
 3. the amount of leisure time he has
 4. knowledge of diet
 5. his knowledge of games and sports
- ____78. The safest and most healthful means of relieving constipation is to:
1. take a laxative
 2. eat a good meal of macaroni and cheese
 3. smoke a cigarette after eating
 4. eat more fruit and vegetables
 5. drink plenty of milk

- _____79. A quick burning high energy food is composed mostly of:
1. fat
 2. protein
 3. carbohydrates
 4. milk
 5. butter and eggs
- _____80. Food has an important place in determining growth, health and fitness. In order to select a well balanced diet we should:
1. listen to radio programs advertising special foods
 2. eat as much as we want to of all food
 3. include foods containing protein, fats and carbohydrates, vitamins and minerals
 4. take the advice of our butcher and grocer
 5. read the advertisements of agencies specializing in health diets
- _____81. Of all the following activities the least valuable in improving physical condition in the normal young person is:
1. playing tennis
 2. bowling
 3. playing handball
 4. swimming
 5. massage treatments
- _____82. The best method of developing heart and respiratory endurance is to:
1. do weight lifting exercises daily
 2. practice the mile run fairly strenuously 3 times weekly for 2 months
 3. eat a diet low in carbohydrates and high in protein
 4. engage in bowling, tennis and volleyball 3 times weekly
 5. swim leisurely 100 yards 3 days a week for two months
- _____83. Ability to hold the breath for 60 seconds after 3 deep breaths indicates:
1. muscular strength
 2. good control of the diaphragm
 3. good mental development
 4. a large chest development
 5. heart and circulatory efficiency

- ____ 84. Good muscular development is valuable, but of more importance to health over the entire life of the individual is:
1. the ability to play cards, dance and talk well
 2. knowledge and skill in golf, tennis and bowling
 3. the ability to run at top speed for 1000 yards
 4. the condition of the heart muscle
 5. the condition of the upper arm and lower leg muscles
- ____ 85. The part of complete physical fitness which is most readily developed through exercise is:
1. large muscles
 2. freedom from disease
 3. better eyesight
 4. endurance
 5. speed
- ____ 86. Relatively the most vigorous conditioning activity for most parts of the body is:
1. cross country running
 2. baseball
 3. weight lifting
 4. archery
 5. tennis
- ____ 87. Good physical fitness is important in that it will:
1. help everyone to high jump 6 feet
 2. produce a race of supermen
 3. provide the body with a large reserve of vitamin C
 4. enable everyone to be a champion
 5. provide a sound basis for learning motor skills and feeling fit
- ____ 88. The human body is probably the most wonderful "machine" ever made. We should:
1. not require dental treatment very often
 2. always maintain constant muscular contractions
 3. be on the alert to see if we can eliminate aspects of unfitness
 4. try to develop other machines to do its work in order for it to last longer
 5. never have an operation or remove any part of it

- _____89. Everyone cannot attain the same degree of physical fitness. This is limited to a great extent by:
1. intelligence
 2. the sex of an individual
 3. the weather
 4. heredity
 5. religion
- _____90. The part of body build which is considered most harmful to all around athletic performance is:
1. bad posture
 2. muscular legs
 3. well developed musculature
 4. excessive fat
 5. size of the feet
- _____91. In the normal person, muscular strength is a decided help in:
1. learning how to float in water
 2. everyday living and working
 3. choosing the right diet
 4. being able to hold the breath for more than 2 minutes
 5. reading and the ability to memorize
- _____92. Generally speaking the conditioning or athletic program for girls as compared to boys should be:
1. the same in all respects
 2. made up of entirely different activities
 3. composed of less violent physical contact activities
 4. made up only of recreational games
 5. confined primarily to those who are interested in teaching
- _____93. Following a vigorous period of exercise a person should:
1. eat a candy bar
 2. smoke a cigarette to slow down the heart beat
 3. take deep breaths of cold air for five minutes
 4. take a warm and then cool shower
 5. drink enough cold water to make up for the weight lost during exercise

- ____94. Physical fitness is an aid in preparation for adult life in that:
1. it will enable us to beat our neighbors in a race
 2. smoking and drinking can be done without harmful effects
 3. it adds to a person's feelings of social and physical competence
 4. all professions demand a lot of muscular strength
 5. it will last forever without further effort
- ____95. For the proper maintenance of physical fitness we need:
1. a football stadium
 2. a doctor to teach and manage our fitness program
 3. long baking sun baths or ultraviolet light treatments
 4. a diet adequately balanced, vitaminized and mineralized
 5. a good massage treatment once a week
- ____96. In order to become physically fit a person must:
1. know scientific facts concerning body structure
 2. have knowledge of the organs and systems of the body
 3. be willing to work hard at a program of exercise
 4. never attempt something he cannot do
 5. always work until physically exhausted in any activity
- ____97. In the proper development and exercise of the body, attention should be paid:
1. to emphasizing one particular exercise
 2. to an all around use of various muscle groups with a graduated series of exercises for each, including introductory, peak and tapering phases
 3. to a light workout regularly of a few muscle groups
 4. to the learning of only one sport well rather than an all around sports program
 5. to strictly formal workouts with no regard to the interests of the individual

- ____98. An important factor, associated with youthfulness of the body, which tends to decrease as we grow older is:
1. the ability to learn new skills
 2. the amount of oxygen which can be inhaled
 3. flexibility of the joints
 4. baldness
 5. an appreciation of recreational activities
- ____99. In a normal individual regular physical exercise will cause:
1. red blood cells to form faster
 2. an overtrained condition of the muscles
 3. the formation of calcium deposits around the joints
 4. the body to age faster
 5. a decreased production of red blood cells
- ____100. It is unwise from a health standpoint for growing boys and girls to:
1. occasionally only get six hours sleep at night
 2. engage in recreational sports together
 3. learn facts about sex and marriage
 4. express their opinions on city government
 5. go on a restricted unsupervised diet

Kneer, Marian Elizabeth. "The Adaptation of Wear's Physical Education Attitude Inventory for Use with High School Girls." 1956. (University of Oregon Micro Card Publications).

KNEER ATTITUDE INVENTORY AND DIAGNOSTIC STATEMENTS

A. Attitude Inventory

DIRECTIONS - Please read carefully! Below you will find some statements about physical education. We would like to know how you feel about each statement. You are asked to consider physical education only from the standpoint of its place as an activity course taught during a regular class period. No reference is intended in any statement to interscholastic or intramural athletics. People differ widely in the way they feel about each statement. There are no right or wrong answers.

You have been provided with a separate answer sheet for recording your reaction to each statement. (a) Read each statement carefully, (b) go to the answer sheet, and (c) opposite the number of the statement place an "X" in the square which is under the word (or words) which best expresses your feeling about the statement. After reading a statement you will know at once, in most cases, whether you agree or disagree with the statement. If you agree, then decide whether to place an "X" under "agree" or "strongly agree." If you disagree, then decide whether to place the "X" under "disagree" or "strongly disagree." In case you are undecided (or neutral) concerning your feelings about the statement, then place the "X" under "undecided." Try to avoid placing an "X" under "undecided" in very many instances.

Whenever possible, let your own personal experience determine your answer. Work rapidly. Do not spend much time on any statement. This is not a test, but is simply a survey to determine how people feel about physical education. Your answers will in no way affect your grade in any course. In fact, we are not interested in connecting any person with any paper - so please answer each statement as you actually feel about it. BE SURE TO ANSWER EVERY STATEMENT.

1. If for any reason a few subjects have to be dropped from the school program, physical education should be one of the subjects dropped.
2. Students can better understand each other after meeting and playing together in physical education activities.
3. Physical education activities provide no chance for learning to control strong feelings, such as anger.
4. Taking part in lively physical activities gets one interested in using good health habits.
5. Physical education is one of the more important subjects in helping to teach and practice acceptable rules of behavior with other people.
6. Time spent in dressing, showering, and playing in physical education class could be more valuable if spent in other ways.
7. Very active play works off harmful strong feelings such as anger.
8. A person's body usually has all the strength it needs without taking part in physical education activities.
9. I would take physical education only if it were required.
10. Taking part in physical education activities tends to make one more likeable and better able to get along with other people.
11. Taking part in physical education gives no help in developing the ability to feel calm in strange situations.
12. Physical education in most schools does not receive the stress that it should.
13. Because physical skills seem very important in youth, it is necessary that a person be helped to learn and to improve such skills.
14. Physical education classes are poor in chances to learn how to get along with other people.
15. Exercises taken regularly are good for one's general health.
16. A person would be better able to control his feelings if he did not take part in physical education.
17. An average amount of skill in active games or sports is not necessary for leading the fullest kind of life.
18. It is possible to make physical education a valuable subject if a wide variety of useful activities is offered.
19. Physical education does more harm than it does good.
20. Developing a physical skill will relax your mind.

21. Meeting and playing with others in some physical education activity is fun.
22. Physical education classes provide nothing which will be of value outside of class.
23. Physical education classes provide no chances for learning to respect the rights of others which will help one to become a better citizen.
24. There should not be over two one-hour periods per week given to physical education in schools.
25. Physical education situations are among the poorest for making friends.
26. Belonging to a group, for which opportunity is provided in team activities is a desirable experience for a person.
27. Physical education is not valuable enough to make it worth the time spent.
28. Physical education is an important subject in helping a person gain and keep all around good health.
29. Physical education skills will add to the joy and pleasure of living.
30. No definite good results come from taking part in physical education activities.
31. People get all the physical exercise they need in just taking care of their daily work.
32. Taking part in team sports during physical education is helpful.
33. All who are physically able will profit from an hour of physical education each day.
34. Physical education activities tend to upset a person's feelings - for example, make him angry.
35. Physical education is helpful in building up enough extra strength and in improving the ability to keep going for daily living.
36. Physical education should be included in the program of every school because it helps a person to think better and to control strong feelings, such as anger.
37. Physical education makes one less friendly by encouraging people to be better than others in many of the activities.
38. I would advise anyone who is able to take physical education.
39. Taking part in sports, games, and dance makes for a better understanding of life, and increases the enjoyment of it.
40. Physical education class is a waste of time in improving health.

B. Diagnostic Statements

DIRECTIONS TO STUDENTS - Same as for Attitude Inventory (A)

1. Our physical education activities are fun.
2. Many of the games we play during physical education class are a waste of time.
3. I enjoy physical education class when team games are taught.
4. I enjoy physical education class when dance activities are taught.
5. I enjoy physical education class when individual games are taught.
6. Various physical education activities that we take part in have helped me develop leadership.
7. Many of our physical education activities may be played when not in school.
8. Our physical education activities will improve physical fitness.
9. I would like a greater variety of physical education activities to be offered.
10. I would like more health instruction.
11. We have enough indoor play space.
12. We have enough outdoor play space.
13. We have enough dressing room space.
14. We have enough shower room space.
15. We have enough clothes storage space.
16. Our gym is clean and pleasant.
17. Our shower room is clean and pleasant.
18. Our dressing room is clean and pleasant.
19. Our outdoor play space is clean and pleasant.
20. We have enough playing equipment.
21. Our physical education teacher is friendly.
22. Our physical education teacher teaches us a lot.
23. Our physical education teacher allows us to share in planning class.
24. Our physical education teacher treats everyone in class very fairly.
25. Our physical education teacher gives special help to those needing it.
26. We are given enough time for dressing and showering.
27. Our grading system in physical education is fair.
28. Our physical education class time is too short.
29. Our physical education classes are not too large.
30. Our physical education uniform is pleasant to wear and comfortable.